APR 6 1923 Medical Lib.

THE AMERICAN JOURNAL OF

CLINICAL MEDICINE

Vol. 30, No. 4 APRIL, 1923

The Doctor's Epitaph

THE Doctor Sleeps! No more at Pain's behest
Shall he relinquish his much needed rest;
No more his skillful hand and tender heart
Shall give to some new life a proper start.

THE Doctor Sleeps! His fighting days are done,
But hundreds live because of bouts he won,
And, generations hence, those will draw breath
Who would not BE *had he not vanquished Death!*

THE Doctor Sleeps! Might we his deeds recall
His name would blaze in Fame's enmarbled Hall
But, serving modestly through life, it now seems best
To merely write "HIS WORK SURVIVES," *and let him rest!*

G. H. C.

For Intestinal Putrefaction, Abnormal Gas Formation or Acid Stomach

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The Arlington Chemical Company
Yonkers, New York

Colonel Edward Lyman Munson

The American Journal of
CLINICAL MEDICINE
Dependable Therapeutic Fact for Daily Use

Vol. 30, No. 4 APRIL, 1923

Colonel Edward Lyman Munson

COLONEL Edward Lyman Munson was born December 27, 1868, in Connecticut, and was graduated in medicine from the medical department of Yale University, in 1892, having received from the same university, a year previously, the degree of Bachelor of Arts. A year later, his Alma Mater conferred upon him the degree of Master of Arts and, in the same year, he passed the entrance examination for, and was commissioned in, the medical corps of the regular army. Five years later, he was promoted to the grade of captain. In 1906, he rose to field rank (major) and, about nine years later, he changed the gold leaves of a major to the silver leaves of a lieutenant colonel. Shortly after the World War became also our war, he was promoted to the grade of colonel. During the war, he held for about nine months the emergency rank of brigadier general.

Colonel Munson is one of the best known medical officers in the medical profession, as his hygienic work has attracted considerable attention. The system of making lasts and fitting hygienic or, rather, rational shoes, devised by him, is known not only to orthopedic surgeons but to the general medical profession and to educated laymen.

Aside of a textbook on military hygiene, which is considered a classic, Colonel Munson has prepared a number of articles and monographs bearing on medico-military leadership in the field, and these works are so graphic that the medical men interested in army duties could gain an adequate idea of the tactical problems in modern wars which fall to the lot of physicians serving with troops at the front.

His literary activities led to his election as secretary of the Association of Military Surgeons of the United States and as editor of *The Military Surgeon,* shortly after his return from a tour of duty in the Philippines a few years ago; but, just as he had succeeded in greatly enlarging the then small monthly, he was called to the Southern Department as chief sanitary officer, in connection with the mobilization of the regular army and national guard troops on the Mexican Border, early in 1916.

This office involved great responsibility and initiative, as he had full charge of the sanitary work of the camps of concentration on the southern border.

When the measures to guard the health of the rather raw troops in a semitropical country were fully developed, he was relieved from that duty and assigned as chief surgeon of the 12th Provisional Division, composed prin-

cipally of troops from Illinois and Wisconsin.

The most noteworthy feat of this division was, a march from San Antonio to Austin, Texas, and return; and, in spite of great heat and an inadequate supply of drinking water, the march was a success not only in a strictly military sense but also from a sanitary point of view. The incidence of morbidity was negligible.

Colonel Munson did not allow the mobilization to go unutilized, for he conducted classes and tactical conferences for the medical officers of his division, and thus instructed a number of medical men who became specially qualified for duty in the World War, a year later.

Many ex-medical officers will recall him as head of a large medical training camp during the early part of the last war. Later he was assigned to duty with the general staff as morale officer, and as such he has rendered valuable services not only to his own corps but to the entire army, a fact which is generally acknowledged by all line and staff officers of the regular army.

DR. G. FRANK LYDSTON (1858-1923)

Lately, a little incident spread broadcast as an inspiration to the entire nation. "Let's go" is a motto, not only of the army but of all organizations and men with the right spirit. It is his, and—while not intended for public consumption—he coined the phrase which typifies the man.

Colonel Munson has been awarded the Distinguished Service Medal and several high foreign decorations.

He has helped in many ways to increase the efficiency of the medical service of the Army and has done a good deal to interest the medical profession in national defense. Prominent as a military man, he is also an honor to our profession.

DR. G. FRANK LYDSTON (1858-1923)

A few days ago, the newspapers contained the report of the passing on of Frank Lydston who had been an important figure in the medical life of the United States for many years. Doctor Lydston succumbed to pneumonia after only a brief illness on March 14, in Los Angeles, where he had been spending the better part of the winter.

It can hardly be said that Doctor Lydston had gone to live in California to "rest." As is true for so many men accustomed to an active and busy life, Lydston had never learned to play and, although he had attained the age of sixty-five years, he had found it impossible to take it easy. Still, the mild California climate appealed to him, a native of that wonderful state, and he felt like going home when, some years ago, he had gotten into the way of spending weeks, or months, at a time in California.

It would be difficult to fix upon any one thing with which Doctor Lydston's name is especially associated and for which he is particularly well known. His activities were as numerous as was well possible. To physicians, he appealed as one of the leading genitourinary surgeons of the country. Indeed, it was Frank Lydston, among others, who established genitourinary practice as one of the recognized specialties of medicine.

In going back to Lydston's early contributions to medical literature (and it may be said in passing that his writings were voluminous and comprise several hundred titles) one is astonished at the foresight and at the keen insight that he showed, anticipating many recent attainments and discoveries.

Doctor Lydston was a criminologist of note, a personal friend of Lombroso, who thought very highly of him. His book on "Diseases

of Society" constitutes one of the important documents on its subject. Lydston's work on gland transplantation was a pioneer effort, he being the first one who ever undertook such an operation. His controversy with Voronoff is in the minds of all of us and we are fully aware of Lydston's priority in this particular field. At the same time, Lydston stimulated interest in the study of endocrinology and hormone therapy, which he undertook with the enthusiasm and thoroughness peculiar to him; tempered, however, by his characteristic analytical and critical habit of research. His most recent investigations concerned studies of the parathyroid function and we are justified in expecting some tangible and worth-while results from them when they shall be published.

Dr. M. J. Latimer, who has been associated with Doctor Lydston for years as a partner, informed this writer that an article on these parathyroid studies will be forthcoming soon and that much of value has been discovered. Doctor Latimer has carried the burden of the enormous practice for some time and will, of course, continue the work that Lydston and he had originated.

Frank Lydston had endeared himself especially to the fellows of the Academy of Medicine, at the meetings of which he invariably shown as a bright and forceful speaker, as a brilliant conversationalist and raconteur and as a delightful causeur. Those who were privileged to come closer to him and to know him personally were impressed with his sincerity, his honesty of purpose, his perseverance, even in the face of obstacles, and his determination to go ahead and accomplish what he had set out to do. We were proud to call Lydston our friend and we miss him sorely.

THE FLOWER OF SORROW

Summer comes and summer goes,
But all months of all years
There is falling of tears;
Summer comes and summer goes,

All hours are grief's, and the sower sows:
Today and tomorrow
The Flower of Sorrow
Buds and blows.

—John Vance Cheney.

G. Frank Lydston—In Memoriam

At its regular meeting, held March 22, the Chicago Academy of Medicine passed the following resolution unanimously:

In the death of Dr. G. Frank Lydston, one of its founders, who passed away on March 14, 1923, the Chicago Academy of Medicine has lost a faithful Fellow, cheerful companion, clever raconteur, learned colleague, ready at repartee, equally prepared for serious discussion. Always willing to take up the cudgels in behalf of his beloved profession, his country and his kind, Frank Lydston, man and friend, physician, scientist, good citizen, will be mourned by those who knew and loved him.

For the Chicago Academy of Medicine,
The Committee:
EUGENE S. TALBOT, SR.
N. H. PIERCE,
H. J. ACHARD.

March 22, 1923.

CITIZENS' MILITARY TRAINING CAMPS

One of the most startling facts that came out of the war was the discovery that a little more than half the young men who were examined for the draft had something wrong with them either in body or mind. General Ireland outlines the facts in the April number of *Hygeia* in a convincing manner and points out the excellent results that came from proper training in habits of right living, combined with prompt correction of removable defects, which were provided for the man in the service. He continues "The average citizen believes that military service requires a much higher degree of physical fitness than do the

activities of civil life. If equal efficiency is demanded in each instance, this opinion is, of course, false, since the unfit man is hampered in his vocation, be it civilian or military, in proportion to the degree of his disablement."

The citizens' military training camps are carrying on the training that was started during the war. "The man in training camp lives a life which, in the majority of cases, is an entirely new experience. Here he lives according to the laws of health. . . . He has supervised activities in the open air, regular hours for sleep, and wholesome food. He soon learns that proper care of the body brings increased physical and mental efficiency." "Forming good health habits is, of necessity, a part of this training, and habits then formed are not forgotten at the end of camp life. They are carried back, consciously or unconsciously, into family life" and thus bring to bear an influence that spreads to the whole community in which these men live.

CAMP ROOSEVELT

Camp Roosevelt, located on Silver Lake, near Rolling Prairie, Indiana, was established a few years ago, primarily for Chicago boys. At the present time, it accepts boys from all parts of the country. It includes three divisions: summer schools (seventh and eighth grades and all highschool courses); reserve officers' training corps, or military division for older boys, and junior camps.

Camp Roosevelt has made a favorable name for itself in its short life and has contributed toward imbuing adolescent boys with a sense of discipline and of dignity, with love of country and with a love for outdoor occupations.

At the present time, Camp Roosevelt has undertaken the training of highschool pupils for cadet officers who are to qualify as officers at Camp Roosevelt this coming summer. One hundred students for the Reserve Officers' Training Corps are enrolled and are being trained by officers and non-commissioned officers of the U. S. Army.

This class instruction is being tried out for the first time in the history of the R. O. T. C. Hitherto, boys were trained in their schools, and appointed cadet officers without any preliminary specialized training, upon proof of their fitness for such command. This "Intensive Training" will, however, insure a perfect camp organization upon the opening date, which is July 2.

Major F. L. Beals, U. S. A., Professor of Military Science and Tactics in the Chicago highschools, is directing the course, which is equally divided between theoretical and practical instruction, and will be conducted for a series of twelve weeks. It will cover camp customs and traditions, regulations, administration, infantry drill regulations, recruiting, military policy, camp sanitation, military courtesy, scouting and patrolling, tactics and map reading.

This writer, who received similar training while attending public school in Switzerland, is fully convinced of its great value to the participants. He believes that all boys in their teens should, as far as they are physically able, receive cadet training and that all young men should take a series of courses in military training, which might be distributed over the third decade of life similarly as is customary in Switzerland (or was in this writer's time).

The objection that compulsory military training (not military service) is un-American, is badly founded. Indeed, we hold that it is distinctly American, for the reason that it engenders habits of orderliness in thought and in action, that it fosters patriotism, that it teaches the boys to obey—a habit that seems to have gone out of fashion to an alarming degree. We hope that Camp Roosevelt will flourish and will continue, world without end, to extend its benefit to the growing youth of the United States.

Never explain—your friends do not need it and your enemies will not believe you anyhow.—Elbert Hubbard.

THE AIMS OF "HYGEIA"

Hygeia, or health, is not simply concerned with the avoidance of illness; it intends also to lay the foundations for securing good health. Medical science for many years has devoted more and more time to finding how to prevent illness as well as to cure it. In order to secure the full benefits of this study, it is not enough that the doctor knows the causes of disease and what the human body needs in the way of proper food, air, light, exercise and recreation to insure good health; it is far more important that other people know and understand; that there is "cordial cooperation of the medical profession with the public. It is the purpose of *Hygeia,* the new monthly health magazine, to secure this cooperation."

Already, largely as the outcome of experiments on animals, the number of cases of pre-

ventable disease such as consumption, diphtheria, smallpox and typhoid, has much diminished and the toll of deaths from these causes has fallen steadily and greatly. These seem almost magical when the facts are known. But it is not enough and we should realize that "Health has a positive side; it is not enough to live long; it is desirable to live well, and that nation which secures for its citizens the greatest average life with the greatest freedom from disease will in the end possess the earth."

Give out a grouch and you get it back with interest, grim, grum and jinxlike.—Elbert Hubbard.

"CHIRO" SALESMANSHIP

When I read the Editorial referring to the "Chiros", in CLINICAL MEDICINE (January), also the articles referring to the subject in "Let's Talk it Over", it occurred to me that going to the true sources of information, to the chiropractor directly, might give us some illuminating information. I secured a prospectus from which I enclose some clippings which show that it is no wonder that these intruders into the domain of medical practice succeed. It would not hurt us "regulars" to learn from them and copy some of their methods in the training of their "students". For instance, how about this on page twenty-six: "He should know the rules for *the development of Personality which attracts* and *holds patients*. He should know how to enlist their loyalty and engage their enthusiasm in *propagating* the principles among their friends . . . how to address lodge or club meetings; how to bring his town or his community to regard him as a real health authority".

Forsooth, who would ever have thought, in our university days, to teach us such essential "salesmanship" of our talents or accomplishments? May be that our predecessors had those opportunities in learning the principles of living and common sense from their preceptors, in whose offices they learned actual practice and how to earn their substance and subsistence. We in our time could not perceive the practice of medicine through the maze of its theories and ideals. Thus we can truly learn from the irregular competitors' methods.

.....M. D.

There follow excerpts from the prospectus which our correspondent refers to.

You got your life to make a good job of it.
Most men, foolishly, make a mess of it.
They, too, stood, like you do now, on the threshold of a great decision.

But they weakened. They vacillated. They played with Fate. They laughed at her warnings.

And then came a day when Fate laughed, and her victims were thrown into the discard.

Getting a Grip on Opportunity.—Who gets the grip?

You know him. The quick, alert fellow who shot out his hand while his next-door neighbor was "thinking about it".

And, ten or twenty years hence, the man who was "thinking about it" is still toiling, day-by-day, at the same old job—railing at Fate and at everything else for his "poor luck", while the alert friend of his earlier years is enjoying the luxuries, the comforts, the independence that that grip on Opportunity brought him. . .

Men of fortune are rarely men of unusual brain-power. They are rarely men of genius. They are rarely men of extraordinary education.

But they are always men of sound commonsense.

Are you going to grip Opportunity at once and leave Procrastination to the other fellow? . . .

Shake off the dust and the cobwebs from those abilities of yours, and get into the Profession of Chiropractic, which offers you the one splendid chance to realize the ambitions of your life; to utilize, to the full, your sleeping talent; and to reap the rewards that come to the man who can get unusual results by his skill and ability.

As a Doctor of Chiropractic you attain a position of standing in your community and neighborhood. You attract the attention of that neighborhood by the remarkable things which your Chiropractic skill will enable you to do in dealing with disease conditions. You get a just recognition for that skill in the shape of monetary reward.

And that monetary reward will open up to you avenues of comfort and leisure and freedom and independence which are frequently denied to the man who must depend on somebody else's whim for his daily bread and butter. . .

Sanitation and Hygiene.—Inasmuch as the Chiropractor may truly be called a conservator of public health, (How come?—ED.) it is of much importance that he be familiar with all scientific developments which tend to lessen the risks to human life, and which tend to make the life of man comfortable and safeguarded.

Frequently, the Chiropractor is called upon to address clubs and social meetings on subjects pertaining to the health of his community as a whole. Rest, recreation, exercise, cleanliness, dress, ventilation, heating, and hundreds of other topics are subjects on which many will seek his counsel and advice.

The Chiropractor's patients should be made to feel that he is fully competent to act as their guide and advisor on questions pertaining to their daily lives. . .

Applied Psychology.—Chiropractic, more than any other system of healing, establishes

beyond dispute the intimate relationship between the body and the mind; and between physical function and mental function. . .

Mind, then, and the laws of mental functioning, and the application of these laws to the affairs of life, must be studied carefully. . .

Advertising and Salesmanship.—The Metropolitan College believes firmly that every Chiropractor should be a master salesman.

He should be thoroughly qualified to make the Science he follows, and the services he renders to his patients, so clear and so commonsense, that the patient should never again waver as to the relative merits of Chiropractic and any other system of healing [Sic!—Ed.]

He should be prepared to take up missionary work of acquainting the whole world of the principles and practice of Chiropractic; of defending Chiropractic against the slanders and falsehoods of its enemies and opponents.

He should know the rules for the development of Personality which attracts and holds patients. He should know how to enlist their loyalty, and engage their enthusiasm in propagating the principles amongst their friends.

He should know how to announce himself in his local newspaper, in circulars, pamphlets, booklets; how to address lodge or club meetings; and how to bring his town or his community to regard him as a real health authority. [Italics are ours.—Ed.]

The Chiropractic student is taught how to write copy, make layouts, select type and paper, how to select suitable illustrations and cuts, and all the other details that belong to good advertising and salesmanship. . .

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[We hardly think it necessary to comment extensively on these excerpts. Surely, it must be conceded to our friends, the antagonists, that they do know how to put things over. The medical profession has been pretending to "sit pretty" for so many decades and centuries that it has gotten into a rut as regards salesmanship. In the past century, and during these first twenty-two years of the present one, more than ever before in history, there have been outsiders, interlopers, with plausible and impressive (to the ignorant) assertions based upon ideas, not on facts, who were enabled by their fluent sales talk and by their impudent self-assurance to inveigle people into joining their followers. The medical profession thereby was the loser in many ways.

We do not mean to say that these losses were entirely unmerited. It is true, there always have been numerous members of the medical profession who were conscientious, persistent and careful students and who tried honestly to improve and extend their ability to heal the diseased bodies and minds of their clients. A great many, though, there are and always have been who were content with what they had learned in college and who believed that they would not have to open a book or read a journal after that. It is unavoidable that those self-complacent medical men not only did not advance but that they retrogressed, that they became less and less able to attend to the duties which they had assumed. It was equally inevitable that this unfortunate state of affairs reflected upon the medical profession as a whole, that the latter was judged by the shortcomings of some of its members.

We may admit, more or less complacently, and with Uriah Heep humility (which is hypocrisy and pretense) that we are not perfect; but then, nobody is. That will not get us anywhere. It will be far better for us to make the admission, not in false humility but with out hands clenched and with the firm determination to get a good bit nearer to perfection by remedying matters in which we fall short, by improving conditions that are within our sphere of influence, by increasing our own personal individual stock of learning and of ability. If every single physician in this great country of ours will do his darndest during the next five years, studying and working, attending to his patients to the very best of human ability; if, in addition, he will develop a confident, optimistic attitude, realizing that the influence of mind is great, it will be a wonder if immense progress is not made in the course of those few years and if the standing of our beloved profession will not increase mightily and the good that we can accomplish will not be enhanced thereby a thousand fold.—Ed.]

A sound mind in a sound body is a short but full description of a happy state in the world—Locke.

MAKERS OF DRUG ADDICTS

Newspaper reports are not infrequent in which investigators, who may or may not be connected with the Bureau of Investigation, U. S. Department of Justice, calmly accuse druggists and physicians of contributing to the acquirement of drug addiction on the part of many unfortunates. Quite recently, the *Detroit Times* published an article over the signature of William J. Burns, Director of the Bureau of Investigation, U. S. Department of Justice, in which there appeared this statement: "We find druggists everywhere willing to take the last shilling of the dope addict and to continue looking for new customers." As is quite proper, the retail drug trade resents this wholesale condemnation,

and Mr. S. C. Henry, the secretary of the National Association of Retail Druggists, addressed a letter to the Attorney General, Mr. Harry M. Daugherty, at Washington, D. C., remonstrating against the slander to which druggists have been exposed and asserting that Mr. Burns' statement is wholly and unqualifiedly false.

The N. A. R. D. Journal also comments upon the matter editorially and refutes the baseless charge of universal trafficking in narcotic drugs, the charge of which was laid against the pharmaceutical profession by uninformed public officials and by a sensational press.

It is scant comfort for our friends, the druggists, to call their attention to the fact that physicians are frequently accused with like injustice and with an equal want of foundation, of being the cause of drug addiction in a great many cases. It is quite customary to assert that physicians hand out prescriptions for "dope" and for alcoholics for all the money that may be in it and that many physicians have waxed rich by such illegal practices.

The thinking and level-headed reader of newspaper reports will take these allegations for just what they are—cheap, clap-trap, scandal-mongering yellow journalism. While it must be realized that some few druggists have been found to sell drugs over the counter, the dispensing of which is restricted by law, and while some few physicians have been convicted of selling prescriptions for narcotics and alcoholics illegally, it needs no asseveration, being merely a matter of course, of common decency, of pride in one's profession, that the vast majority of pharmacists and physicians abide by the decision of the government and by the rules and regulations that have been issued restricting the prescribing and the selling of these drugs. To accuse a class of men like pharmacists and like physicians categorically of breaking the law habitually and of deliberately injuring their fellow citizens for the sordid gain of tainted money, is a damnable bit of dishonesty that can not be resented too forcibly. It is worse than mere impertinence; it is a false accusation that should be thrown back at its originators who should be made to eat their words.

Thinking people know that pharmacists and physicians belong to the most law-abiding class of citizens and that they do not stoop to such criminal practices as Mr. Burns charges.

THE BEE IS SLANDERED

Recently, we received a letter which the writer forgot to sign (although he concluded it "Yours truly"), and in which he said:

"It may be true that the parasite that causes diabetes mellitus lives in honey, because bees gather much of their honey from out-door closets, stables, sewers, and other filthy sources. I hardly think that they have the power to gather from such sources without carrying away filthy and dangerous germs and parasites. This is my own conviction, and I believe that it has truth enough in it to make it worth while for men skilful with the microscope to investigate thoroughly and find out if this theory of mine is true or not.

"Honey that is made by bees that are fed largely on sugar might not be infected by anything injurious. I am speaking only of that honey which is made in the natural way, and without any artificial feeding of the bees."

We had always harbored the opinion that the busy little bee, at least under conditions of ordinary health, worked with an entirely unobjectionable and sterile technic and that its product, the delectable honey, might be eaten and otherwise used with perfect security.

Of course, there are instances where the bees become ill and, naturally, infect their honeycombs. There are stringent laws, however, governing such circumstances and officials of the Bureau of Agriculture must be notified promptly of such occurrences. Usually, they order certain hives to be destroyed and the honey made harmless by boiling.

That perfectly self-respecting and honorable bees should stoop so low as to forego their flirting with honeysuckles, lilies and all the other beautiful flowers that bloom far afield and give up their sweetness to the little visitors, and that they should be content to "gather much of their honey material from outdoor closets, stables, sewers and other filthy sources" is as new to us as it must be to our readers.

Mind you, we do not offer this alleged theory for any scientific merits, which it decidedly does not possess. We merely reproduce it as an instance of the hopeless vagaries of which some poorly-regulated minds may become guilty.

Nobody who ever lived in the country and who has observed the bees at work has found them frequent the shady and filthy places of the underworld of farms. "Outdoor closets, stables, sewers and other filthy sources" are endowed with a severe and strict taboo by the ladies of the bee world. It is the ever-to-be-swatted fly that is guilty of the offenses

charged against the bee by our correspondent. The bee—charming little lady, especially when she does not sting—is blameless.

RECENT EPILEPSY STUDIES

A few months ago, Chicago papers contained reference to certain experiments that are being carried on in the physiological department of the University of Chicago by Dr. Anton J. Carlson, head of the department, assisted by Doctors Luckhardt and Dragstedt. According to the newspaper account, "it was determined early in the researches that idiopathic (inherited) epilepsy was caused primarily by the malfunctioning of the parathyroid glands."

"Experiments on dogs demonstrated that the removal of these glands quickly resulted in death. Death could be avoided, however, by resorting to artificial means by which the functioning of the glands was virtually duplicated.

"Doctor Luckhardt resorted to simulating this functioning by injection into the victim large quantities of Ringer solution. (This is an alkaline solution consisting of sodium chloride, water and other elements which make up a solution similar in its chemical structure to human blood.)

"This method, by a thorough flushing of the kidneys, is believed to remove bacteria caused by malfunctioning of the parathyroid glands and so to prevent or control epilepsy. [Newspaper medicine is slightly mixed.—Ed.]

"Doctor Dragstedt's method was that of the dietician. By a careful diet of carbohydrates, to stop putrefaction in the intestines, together with quantities of milk sugar, virtually the same results were obtained as by the diuresis method."

—

It goes without saying that we promptly communicated with Doctor Carlson, asking for further information on the subject, and we received, in reply, a circular letter containing a summary of what had already been accomplished. This letter is as follows:

"1. Dr. L. R. Dragstedt and Dr. Amo B. Luckhardt succeeded quite independently of one another and by different methods of conserving the life of completely thyroparathyroidectomized dogs. Both came practically to the same conclusions as to the cause of the heretofore certain death.

"2. Whereas, some animals have now survived as long as 18 months and are apparently normal, we can demonstrate that, under certain conditions, the animals show convulsive seizures closely related to if not identical with grand-mal attacks of idiopathic epilepsy as seen in man. The very conditions which induce convulsive seizures of the grand-mal type in the human epileptic induce or predispose to similar seizures in these dogs. They are:

"(a) A high meat diet—especially if meat is spoiled,

"(b) Constipation (or inflammatory enteritis),

"(c) Intestinal putrefaction,

"(d) Muscular exercise to point of fatigue,

"(e) Marked emotional excitement and especially sexual excitement,

"(f) The oëstrus cycle (menstruation),

"(g) Pregnancy.

"3. The above attacks can be prevented or rapidly controlled by the dietary and other measures described in the publications cited.[1] On these grounds, the undersigned are attempting to control idiopathic epilepsy by the same dietary and drug treatment which so perfectly control the convulsive phenomena of the animals above referred to.

"4. The scientific publications dealing with the problem which we have been investigating are appended below. We are ourselves just beginning to develop the methods of treatment for man and are not, therefore, in a position to propose a well worked out system of treatment.

"Fraternally yours,
Lester R. Dragstedt, M. D.,
Amo B. Luckhardt, M. D.

—

We appreciate Doctor Dragstedt's promise to keep us informed of his progress, and we hope to be able, from time to time, to pass on to our readers any information that may become available.

The problem of the epilepsies is so difficult and so important that we feel constrained to watch closely for any progress that can be made. Our own experiences incline us strongly to hope for definite results from endocrine therapy as the leading treatment, more especially parathyroid substance and anterior pituitary. It is quite evident, that we cannot be satisfied with such an indication, however clearly it may be indicated. A strict and careful regulation of diet and of proper habits of personal hygiene are essential. Moreover, the general habits of the patients require close supervision and regulation. Indeed, the physician should remain in constant touch with his patient and should regulate virtually his entire life and activities.

[1] 1. The Prevention and Control of Parathyroid Tetany, A. B. Luckhardt and Rosenbloom, *Proc. Soc., Exp. Biol. & Med.*, 1921, XIX, pp. 129-130.

2. The Relation of Parathyroid Tetany to Intestinal Bacteria, Dragstedt, *Amer. Jour. of Physiol.*, Vol. 59, 1922, p. 483.

3. The Control and Cure of Parathyroid Tetany in Normal and Pregnant Animals, Luckhardt and Rosenbloom, *Science*, Vol. 56, July, 1922, p. 48.

4. The Recurrence of Parathyroid Tetany in Completely Parathyroidectomized Animals During the Oestrus Cycle. Luckhardt and Blumenstock, *Science*, 56, Sept., 1922, p. 257.

5. The Pathogenesis of Parathyroid Tetany. Dragstedt, *J. A. M. A.*, 1922, Vol. 79, pp. 1593-1594.

6. The Preservation of the Life of Completely Parathyroidectomized Dogs by Means of Oral Administration of Calcium Lactate. Luckhardt and Goldberg, *J. A. M. A.*, 1923, Vol. 80, pp. 79-80.

DR. C. A. BRYCE

Many of our readers have been greatly interested in the contributions from the pen of Dr. C. A. Bryce, formerly editor of *The Southern Clinic,* who writes from a practical experience of many years to whom time has vouchsafed a kindly and cheerful philosophy that goes far to help solving the many difficult problems confronting physicians. Being convinced that the ancient adage is fully justified, namely, that the young men are for war, for the active life's work, while the old should be approached for counsel, we have arranged with Doctor Bryce to supply us with regular contributions in which he will delve into the life of the physician, not limiting his discussions to problems pertaining strictly to the practice of medicine but also touching upon other questions that interest medical men, either as physicians or as citizens, family men and as just folks. We are convinced that Doctor Bryce's collaboration will be welcomed by many. We ourselves expect confidently much enjoyment from his periodical contributions, much benefit and help.

The first one of Doctor Bryce's regular articles appears in this issue of CLINICAL MEDICINE, on page 291. It refers to a question that has, seemingly, been answered definitely long, long ago; concerning which the attitude of clinicians, obstetricians, teachers, preachers, and moralists of all walks of life is quite clear. Yet, among the people most concerned, exceptions are always claimed for individual instances, and it is especially the young physician, he who is trying hard to establish himself in practice and to make for himself a good name as a capable and honest physician, who is approached by the tempter and to whom the proffered arguments, taking the form of much-needed silver and gold, are all but irresistible.

When it comes to the question: Shall abortion be performed in any special case? the only safe way is to say: Never, unless to save the life of the mother, and then only after proper consultation and only by the attending physician with the assistance of his consultant or by the latter. If two physicians agree that abortion is necessary, the operation may be performed, for the stated purpose. In all other cases, it should be refused.

Fortunately, the scorn and contumely with which the unmarried mother was wont to be regarded are being moderated. It may be argued that, after all, she but obeyed the impulse that Nature had implanted in her and that, obeying Nature's call, she could not have sinned. Under any form of civilization and any moral code, such a plea may not be advanced properly. If society agrees that certain things are not calculated to promote its welfare, if it decides that they conflict with its religious views, those living under the laws of that society must conform to its dictates, "Other peoples, other customs." In some parts of the earth, among some aborigines, the indiscriminate congress of sexes is not discouraged; in most cases, however, at least an understanding of intended wedlock is required. Without it, pregnancy in the unmarried woman is discountenanced more or less severely.

Under our code of ethics, that of the Caucasian races, society has decreed that pregnancy may be incurred properly only under certain restrictions, namely, by the union of a woman with her lawful husband. Every other pregnancy sins against the social, moral and religious custom and is condemned. However, the interruption of such an illegal pregnancy sins equally against social, moral and religious customs and must be looked upon as a wrong, with the one exception mentioned. The code of medical ethics is very strict in that respect, and no physician can run counter to its dictates without serious harm to himself. Indeed, in many cases he will indirectly harm his client likewise.

What, then, shall be done in cases in which the occurrence of pregnancy would be a calamity? This may be the case not only in unmarried women, but is actually so in many married wives to whom pregnancy and confinement, the raising of additional children spells disaster. Moreover, there are cases where pregnancy and child birth are against the best interests of society, especially in the case of defectives who should be prevented from procreating. The solution by means of birth control, which has been proposed seriously and sincerely, is condemned by many. In last month's issue of CLINICAL MEDICINE (page 195) Dr. E. H. Pirkner criticized it absolutely. Still, it is but natural that opinions should differ widely in this matter.

We do not intend to discuss birth control on this occasion. It would require a special article; in fact, more than one article, to do justice to this problem that is agitating the minds of many people so seriously. Our present question deals solely with the performance of abortion. Here, fortunately, the consensus of opinion is without qualification against the

taking of life; the one exception only being granted. To young physicians, especially, we would urge Doctor Bryce's counsel for careful consideration: Do not dally with the temptation; do not permit yourself to argue the question. There is only one thing to be done: Refuse all requests, unless it is a question of saving the mother's life. And, then, undertake this serious operation only after counsel and with proper assistance.

For the young woman who is "in trouble," various ways are open today which will offer her opportunities to be saved from disgrace and which will permit her to carry her baby to term and then to take up her life again, without the handicap of the Hester Prynne's of other days.

This I learned from the shadow of a tree
That to and fro did sway upon a wall—
Our shadow-selves, our influence, may fall
Where we can never be.
—Anna E. Hamilton.

EYTINGE IS OUT AGAIN

Many of the older subscribers of CLINICAL MEDICINE will recall several articles and editorials which appeared, some years ago, with reference to the case of Victor Louis Eytinge.

At that time, Eytinge was a "lifer" in the Arizona State Prison. On flimsy evidence, he had been convicted on a murder charge. It was later proven by expert medical testimony, as set forth in CLINICAL MEDICINE, that the evidence was faulty and that a miscarriage of justice had put Eytinge behind the bars for life.

In ninety-nine cases out of a hundred, this would have ended the matter so far as the unfortunate prisoner was concerned; but not so with Victor Louis. His first effort was, to build up his health. Having gone to Arizona condemned to die of tuberculosis, Mr. Eytinge put up a marvelous fight in prison against the white plague, handicapped by lack of proper food and funds.

He organized and promoted the activities of the prisoners in selling souvenirs and, in this way, furnished himself and others with funds with which to build up their health. In this manner, it developed that this remarkable prisoner was possessed of unusual talents in the art of writing convincing letters. His genius in this direction gained national recognition and the name of Victor Louis Eytinge became known wherever better business letters were discussed. A large and remunerative business in planning letter campaigns was built by Eytinge within prison walls. His fame extended into every nook and cranny of this broad land of ours. Hundreds of opportunities waited for him pending his parole from prison.

Thousands upon thousands of letters from all over the United States were written to Arizona officials pleading for the release and pardon of Eytinge. This campaign extended over a period of sixteen years. During this time, Eytinge had become engaged by correspondence to Miss Pauline Diver, herself a business woman of note.

Finally, the persistence of Victor Louis Eytinge has been rewarded and he has not only gained his freedom, but has realized his ambition in marrying Miss Diver and of stepping into a $10,000-a-year job.

Congratulations to the happy couple are in order and all honor is due to a man of such purpose.

More power to you, Mr. Eytinge. May many years of happiness and useful activity be yours.

TRAINING SCHOOL FOR LABORATORY TECHNICIANS

We are interested in an announcement emanating from the Beebe Laboratories, Inc., St. Paul, Minn., which maintain a training school for laboratory technicians. The work done in clinical and research laboratories has developed very rapidly in recent years, and it has been found quite feasible to train intelligent and ambitious young people, even though they might not have a medical degree, to become efficient technicians in this work. The establishment of a school with a definite purpose of giving training and tuition in laboratory work is a new phase that is to be greeted with satisfaction.

We note that the courses offered comprise: Course No. 1—General Bacteriology. Course No. 2—Immunology and Serology. Course No. 3—Serum and Vaccine Therapy. Course Nos. 4, 5 and 6—Chemistry. Blood Chemistry and Gastric Analysis. Course No. 7—Materia Medica. Course No. 8—Urinalysis. Course No. 9—Anatomy and Physiology. Course No. 10—Medical Terminology. Course No. 11—The Interpretation of Laboratory Results. Course No. 12—Hematology. Course No. 13—Parasitology. Course No. 14—Office Practice. Course No. 15—Autopsy Course No. 3A—Serology. Course No. 16—Tissue Technique.

Leading Articles

Arsphenamine Treatment of Spirochetic Gingivitis[1]

(Pyorrhea Alveolaris, Riggs' Disease)

By JOHN A. KOLMER, Philadelphia, Pennsylvania

Professor of Pathology in the Graduate School of Medicine of The University of Pennsylvania

THE importance of gingival infections is universally recognized by both the dental and medical professions, not only in relation to the purely local effects in the mouth, but also in relation to focal infection or the development of general pathological conditions, as anemia, acute and chronic arthritis, neuritis, vascular, myocardial and renal degenerations and inflammations.

In the majority of cases, the disease apparently begins on the surface of the gums (a *gingivitis*), infection being aided by mechanical injury of the tissues and neglect of oral hygiene. When neglected, the inflammation advances along the root of the tooth into the alveolus, destroying the tissues of the peridental ligaments and producing thereby a series of suppurative cavities or pyorrheal pockets, exposing the cementum and finally causing its absorption (*chronic suppurative pericementitis*) with suppuration, necrosis and absorption of the alveolar processes (*chronic suppurative alveolitis*), resulting in the loosening and loss of teeth.

These changes may be, and usually are, associated with abscesses at the roots of one or more teeth (apical abscesses), although these infections are usually caused by direct exposure of the root canals by cavities or, in the absence of these, possibly, in some cases, by infection of the periapical tissues by organisms brought to the parts by the blood or lymphatic channels.

Etiology and Diagnosis

The mouth constantly harbors various bacteria, fungi and some protozoa, notably different varieties of spirochetes. Among the bacteria, staphylococci, streptococci and pneumococci are usually to be found, and all of these are capable of inducing low-grade inflammatory changes when their invasion into the tissues of the gums is aided by abrasions due to picking and brushing the teeth, accumulations of tartar or minute injuries from other causes. Colonies of bacteria growing between teeth in tartar deposits may produce sufficient amounts of toxins to cause superficial erosions and thereby aid infection of the deeper tissues. As shown by Smith and Barrett[1], endamebas may be present and, by means of their migratory and digging movements, carry bacterial and spirochetic infection into the deeper tissues.

In all cases of chronic suppurative gingivitis, pericementitis and alveolitis, commonly designated as pyorrhea alveolaris, or Riggs' disease, bacterial infection may be said to play an important part. In many cases, however, bacteriological examination shows such a preponderance of spirochetes, with or without fusiform bacilli, that these organisms are to be accepted as playing the major role in infection. Endamebas may be found in both bacterial and spirochetic types of the disease, though they are not to be considered a cause of the infection but as important secondary invaders capable of carrying infection into the deeper tissues. Various fungi are usually found, but their importance has never been estimated and it is highly probable that they are of secondary importance.

The proper treatment of pyorrhea alveolaris, therefore, requires a bacteriological diagnosis for the purpose of determining whether the infection is purely *bacterial* (the usual normal or but slightly increased flora of spirochetes and fungi being also present) or predominantly *spirochetic* (some bacteria being always present). At the same time, a search is made for endamebas; for, if they are pres-

[1]From the Research Institute of Cutaneous Medicine, Philadelphia, Penna.

[1]Smith, A. J., and Barrett, M. T. In Musser and Kelly's "Practical Treatment," Vol. IV, 1917, p. 581.

ent in increased numbers, adequate measures for their destruction are required. In the majority of cases, these examinations disclose an increase of both, bacteria and spirochetes, and local medicinal treatment should be directed against both of these in addition to the usual surgical procedures.

For purposes of differential bacteriological diagnosis, the examination of simple smears of gingival material is sufficient. A clean microscopical slide is employed. A small drop of water, saline solution or saliva is placed in the center and material is removed from the gums with any suitable instrument, as a scaling tool, platinum wire, small swab, etc. An effort should be made to secure material from the pockets if any are present, and, as a general rule, preparations should be made from several different areas. The material is mixed in the drop of diluent and spread out into a thin smear. This is allowed to dry in the air, followed by fixation with heat by drawing the preparation several times through the flame (film side up), after which the smear is flooded for one minute with carbol-fuchsin diluted 1:5 with water. The slide is now washed with water, dried and examined with the oil-immersion lens for the bacterial and spirochetic flora.

Some bacteria, leptothrix threads and an occasional spirochete are to be found in smears of normal gums. But in gingivitis, enormous numbers of bacteria and fungi, with only an occasional spirochete, may be found, and these may be interpreted as predominantly bacterial infections. In some cases, enormous numbers of spirochetes are found along with bacteria and fungi, and particularly fusiform or banana-shaped bacilli, and these are predominantly spirochetic infections. Most cases show a combination of these, that is, enormous numbers of various bacteria and spirochetes with leptothrix threads, pus cells, detritus, etc.

Endamebas may be found in stained preparations and, indeed, with experience, the complete examination for bacteria, spirochetes and endamebas may be so conducted. After removal of the gingival material and its admixture with the drop of diluent on the slide, a cover glass is adjusted and the preparation examined with the light-diaphragm well cut down, as in examining urine for casts and cells. If stained preparations are to be used (and these are particularly convenient because the dentist may prepare the smears and, after allowing them to dry, forward them to his laboratory for examination), the method is the same as described, except that, after staining for a minute with 1:5 carbol-fuchsin, the dye is washed and the smear stained for an additional minute with methylene blue, followed by washing and drying. The examination is made with an oil-immersion lens.

Treatment

In the treatment of spirochetic gingivitis, pericementitis and alveolitis, the local application of solutions of arsphenamine or neoarsphenamine has proven very efficacious. Bacterial infections are usually treated with iodine, one of the silver or mercurial preparations, etc., and endamebas removed by the local application of solutions of emetine.

Contrary to usual impressions, both, arsphenamine and neoarsphenamine are known to possess spirocheticidal activities *in vitro;* experiments by Schamberg, Kolmer and Raiziss[2] have shown that spirocheta pallida suspended in saline or broth is killed by 1:2000 and higher dilutions of arsphenamine. Noguchi and Akatsu[3] and Noguchi[4] found that 1:7500 dilutions destroy this spirochete. In so far as the mouth spirochetes are concerned, the activity of arsphenamine is reduced by the presence of pus and detritus, but mixtures of equal parts of gingival material and 1:100 to 1:200 dilutions of arsphenamine or neoarsphenamine yielding final dilutions of 1:200 to 1:400 result in almost immediate loss of motility of the mouth spirochetes.

Clinical experience and, especially, the reports by Dr. Barrett show quite conclusively that the local application of 1-percent solutions of arsphenamine exercises a prompt curative effect in spirochetic gingivitis. Neoarsphenamine, being somewhat less spirocheticidal, should be used in a 2-percent solution. Either drug may be applied to the gums as a powder, but it is more difficult to treat the pockets by this method.

Arsphenamine and neoarsphenamine in these strengths do not produce irritation of the tissues or undue pain; the swallowing of the solution as ordinarily applied is without harm, as large amounts may be swallowed without the slightest untoward effects. The metallic taste left in the mouth after treatment is readily corrected by spraying over the tongue and gums some pleasant solution of the aromatic oils, as cinnamon water.

Arsphenamine should be used in the usual alkaline solution and, when properly dispensed

[2]Schamberg, J. F., Kolmer, J. A., and Raiziss, G. W., *Amer. Jour. Syph.*, 1918, 1, 1.
[3]Noguchi, H., and Akatsu. *Jour. Exper. Med.*, 1916, 25, 361.
[4]Noguchi, H., *Amer. Jour. Syph.*, 1918, 1, 261.

in ampules sealed *in vacuo*, the solution keeps for several weeks. A slight change in color does not indicate a reduction in spirochetic activity or a dangerous increase in toxicity. Solutions of neoarsphenamine are prepared in distilled water and may be dispensed ready for use in ampules sealed *in vacuo*. Experiments have shown that the trypanocidal activity of solutions of arsphenamine is slightly reduced after one month and, for best results, it is well not to use solutions of either arsphenamine or neoarsphenamine that are more than 4 to 6 weeks old.

As a general rule, 1 Cc. of either solution suffices for a treatment. After cleansing the gums and pockets, the solution is best applied to the gums, between the teeth and in the pockets, by means of a small syringe fitted with a small, flexible and curved needle. An effort should be made to fill each pocket as the needle is withdrawn.

The usual case will require a series of 6 to 10 daily treatments, followed by additional treatments at lengthening intervals, according to conditions. If there is reason to suspect bacterial activity, iodine, mercurophen or silver solutions should be used conjointly. A convenient form of treatment of these double infections consists in using a mixture of equal parts of 1-percent solutions of arsphenamine and 1:1000 solution of mercurophen. The latter keeps indefinitely at room temperature and the mixture may be made as required in the syringe by drawing equal parts of both and applying to the tissues as described.

The Lipoids

By H. ISCOVESCO, Paris, France

EDITORIAL COMMENT—Doctor Iscovesco's researches appear to furnish light in the apparent muddle in which we find ourselves regarding the internal secretions, their physiological importance and their clinical application. His explanation, that certain ones of the assumed or alleged internal secretions are actually lipoids, is promising. It would clear up some seeming contradictions. We shall be interested in watching the further work done on this problem.

THE word "lipoid" has a physiological meaning and, like the word "ferment," is not confined to any well-determined chemical group. The lipoids are really functional entities which have forced themselves upon us. Our actual definitions and classifications of those organic substances that have the appearance of fats are as important as were those of the albuminoids. In the same way as we never talked of albuminoids but of proteins (in which are included the albumens), the globulins, the protamines, etc., it would be better to designate as *adipoids* a group of substances which includes the true fats, the acid fats, the waxes, the lipoids, the cholesterids, the protagons and the cerebrosides.

It has become customary to designate under the name of lipoids everything that is extracted from the tissues and humors of the organism by means of solvents such as ether, chloroform, benzol, etc. But, in addition to the adipoids, the first extractions remove many impurities such as proteins, coloring matter, and even some salts. It is only after several precipitations and further treatment with appropriate reagents that a pure lipoid is obtained, or at least a group of lipoids in which one of them is so largely in excess that one may ignore the rest. The final product is a substance which has more or less the appearance of a fat, but it differs completely from fat in its biological properties and also in the chemical constitution of its molecule. In fact, a lipoid is more a fat than is vaseline, in spite of its physical appearance.

Some Points About Lipoids

At the present time, the following points may be considered as settled:

1.—The lipoids are adipoids. Their molecule, which is much larger than that of the true fats, contains one or several radicles of the higher acid fats, often glycerophosphoric acid, a nitrogenous base which is variable and characteristic of the lipoid in which it occurs, sometimes sulphur in place of the phosphorus, or even sulphur and phosphorus together. It is for this reason that they have been classified as phosphatides, sulphatides and cerebrosides, which latter contain neither sulphur nor phosphorus.

In short, while the true fats are always ternary substances (C, H, O.), the lipoids are always at least quaternary (C, H, N, O.) and more often than not quinternary (C, H, O, N, P.).

2.—Cholesterin is not a lipoid any more than are alcohol or phenol or certain bases of organic origin which are soluble in alcohol or

organic origin which are soluble in alcohol or ether. Cholesterin is an adipoid. It is a ternary substance and has an alcohol function. It always accompanies the lipoids and seems to have a balancing function or a neutralizing action with regard to these substances, attenuating or compensating some of their effects.

3.—Pure lipoids may be prepared which are absolutely free from all trace of proteins. It is with such pure lipoids that I have carried out my researches.

4.—Lipoids are not colloids, although they may give fine emulsions with water. They are no more colloids than are sulphides of arsenic or iron hydroxide, in spite of the fact that in certain conditions during their preparation they may be found in the form of colloidal suspension.

5.—Overton thought that all cellular changes were conditioned by the lipoids. It is now known that this opinion went too far and that liposolubility intervenes as a factor only in certain conditions, which may be considered as exceptional, as in narcosis, for example.

Functions of Lipoids

Nothing definite is known regarding the function and the importance of the lipoids in immunity. There are facts in great number, a cloud nucleus of science. It is probable that there is no general law governing this condition. It is impossible to synthetize.

Certain lipoids are hemolytic, others are antihemolytic. I have myself shown, with Foucaud, that the red corpuscles contain lipoids which protect them against the soaps and saponin. Certain microbes contain hemolytic lipoids. Kyes' cobralecithid was the subject of some very beautiful research work on the part of Fourneau and Delezenne, who characterized it as an anhydride of the monopalmitophosphoglyceric ether of chlorine. It is then of lipoid type.

The lipoids have no constant function in hemolysis: it is all a question of kind. All depends, in fact, on the conditions and on the different substances with which the lipoids can enter into combination. The case of cobralecithid is perhaps not unique.

The lipoids of certain microbes are toxic. Some of them, injected under the skin, provoke intense inflammatory reactions. This is the case with certain lipoids extracted from the tuberculosis bacilli.

It is not certain that the lipoids are antigens.

It appears that they play an important part in the Wassermann reaction.

Calmette, Massol and Guérin have pointed out that animals whose serum is rich in lecithin are less liable to tuberculosis than those whose serum is poor in that substance. Regarding the fixation of toxins, generally speaking, there is no law: it is again a question of kind. There are lipotropic toxins, just as there are alkaloids which are liposoluble or otherwise. All depends, then, on the physicochemical properties of the toxin under consideration.

It seems to be almost certain that, in certain cases, lipoids, either pure or combined with certain ether substances, may play an important part in some of the mechanisms of immunity. All depends on the case. This is all that can be positively affirmed, and it is extremely gratifying. Is it possible to formulate a general law on the part played by the inorganic salts in the organism? Certainly not; for all depends upon the salt and the case under consideration. It is sufficient to know that the salts play a capital role in the phenomena of life, leaving us to study each particular case thereafter. It is exactly the same thing with lipoids.

Origin of Vitamine Studies

The experiments of Hopkins are very often cited as the first which demonstrated the absolute necessity of the presence of lipoids in food. It was really Wilhelm Stepp, whose first researches date from 1909 and were finished in 1911, who raised the question and showed the way, even to the American authors who added some complementary details to the doctrine of Stepp. But they created a new word: Vitamine A, or Vitamine liposoluble. First Stepp and then Hopkins (a year later) proved that it was impossible to maintain an animal alive, or to permit of the growth of a young one, with a regimen which was rigorously deprived of all its lipoids. The researches of Néville, MacArthur and Luckett, McCollum and Davis, Lafayette B. Mendel, Osborne and Mendel, Hans Aron, Durlach, Heubner, Roehl, etc., confirm the experiments of Stepp: Any regimen without lipoids is deficient.

It must, however, be taken into account that, in order to deprive a tissue entirely of its lipoids, very prolonged extractions are required and, very often, a series of solvents. It is to technical faults in making the extraction that certain contradictory results published by some American authors must be attributed. The only argument which can be brought forward for the existence of Vita-

mine A (fat-soluble) which, it may be stated, would be removed by the extracting solvents at the same time as the lipoids, is the very small quantity of lipoids that it is necessary to furnish in order to complete the regimen. But this argument has no value whatever. It it necessary only to consider that, the organs of a rat containing altogether a few centigrams of lipoids, a very small quantity of butter or hepatic lipoid would suffice to be greatly in excess of the quantity of lipoids contained in all its organs. Nearly all the experiments of this kind are carried out on rats. We also know from Roehl's experiments that the organism is incapable of synthetizing the characteristic lipoids of its organs from inorganic phosphorus, however much of the latter be supplied to it; and we know from another source (Heubner) that growth is best promoted by organic phosphorus.

Animals submitted to a regimen deprived of lipoids can be preserved by the addition to their food of butter, cream, a little codliver oil or lipoids from the kidney, pancreas, liver, muscles or other organs. On the other hand, neither lecithin nor cerebron nor cephalin possess this offsetting property.

Lipoids play a leading part in the nutrition of the cornea and in the development of the skeleton. Some time ago, the Japanese doctor Mori had noticed the frequence of xerose of the cornea and of keratomalacia in children fed exclusively on vegetables. These children recovered perfectly when given codliver oil. Goldschmidt and A. Franck were able to reproduce in rats these serious troubles of the cornea and conjunctiva with a regimen deprived of lipoids.

Regarding skeletal troubles, the researches of Mallanby are not conclusive, since the rachitis in his young dogs was provoked by the absence of both lipoids and lime. It is true that the subjects recovered on receiving codliver oil. But, since the war, many cases of osteomalacia have been observed in young children who received, as fatty food, only a kind of vegetable margarine. These facts have been observed by Bloch at Copenhagen, Harriette Chick and Elsie J. Dalyell at Vienna. In all these cases, a small quantity of codliver oil was sufficient to obtain a cure. Now, I showed in 1914 that the activity of codliver oil was due solely to the lipoids contained in it and that it is necessary only to remove, by precipitation with acetone (at low temperatures), the lipoids, for it to lose its specific properties.

For a great number of English authors and for the commission delegated by the Lister Institute and the Medical Research Committee, the lipoidic substances and the fat-solubles play a capital role in the development of the skeleton and are given the name antirachitic substances. But these conclusions are based on the researches of Mallanby, which do not carry absolute conviction.

In any case, the lipoids are indispensable for life and for growth; that is certain, and it was first demonstrated by Stepp. It appears that, for the adipoids as for the proteids, the organism has not only quantitative but also qualitative needs, and that, just as it is incapable of synthetizing certain amino acids, it is incapable of synthetizing the stearines and certain of the highly differentiated lipoids.

Lipoids Not Only General But Specific

There is more to be said. My researches have proved that the lipoids play not only a capital role in the general development of the organism, but that certain lipoids exercise a local influence on certain organs. It is these facts (the influence of certain lipoids on the nutrition and growth of certain organs, to which I was the first to call attention) that I shall now set forth.

Here arises an important question. Do certain organs contain lipoids which are specific and characteristic for the organ under consideration? We can at once reply in the affirmative with respect to the heart, the liver, the placenta, the corpus luteum, the brain and the thyroid. Erlandsen has extracted from the heart a mono-aminomono phosphatid containing an animal base (amino biogene), which is found nowhere else and which is charactertistic for that organ. I have isolated this same lipoid and have found that it has marked exciting and cardiotonic properties. The corpus luteum contains a lipoid which is a pentaminodiphosphatid (Hermann), which is found nowhere else in the organism and is characteristic. The placenta contains a lipoid which is very rich in nitrogen and which is characteristic. The kidney contains carnaubon, isolated by Dunham; the pancreas carries vesalthine, isolated by Frankel. The nervous system contains sahidine (Frankel), sphyngomyeline which Rosenheim and Tebb were able to isolate by means of hot pyridine, cephaline, etc. The lipoids extracted from the different organs differ one from the other completely in their physical aspects. Nothing is more unlike the ovarian lipoid than that of the testicle or the thyroid.

Physiological Study

Another and the surest method of differentiating one lipoid from another is the physiological. It is the one I adopted. Just as the physiological method is the only one which enables one to know definitely whether a ferment is glycolytic or amylolytic, so the experimental method which I followed is the only one, until the chemists have finished their study of the lipoids, which permits one to study their physiological role.

My first experiments date from 1908. I used principally rabbits, sometimes also dogs. I always kept controls of the same age and weight and sometimes even from the same litters.

I was able thus to demonstrate that the administration of an ovarian or testicular lipoid to a young rabbit produced, after a certain time, hypertrophy of the ovaries and uterus or of the testicles. While the uterus of the rabbit controls weighed on the average 3.5 to 5 Grams (54 to 77½ grs.), those of the treated subjects weighed from 8 to 10 Grams (123 to 154½ grs.) and even more. In the same way, while the ovaries of the treated subjects weighed (the two together) 0.75 to 1.3 Grams (11½ to 20½ grs.), those of the controls weighed 0.4 to 0.5 Grams (6¼ to 7¾ grs.). Similar results were observed in the case of young males treated with the testicular lipoid.

With the thyroid lipoids (the portion which is insoluble in acetone), I have found after a few weeks (usually twelve to fourteen) not only an increase in the thyroid, but also a slight hypertrophy of the heart and of the genital organs, this last, however, much less accentuated than after giving the ovarian lipoid.

I have shown, after Kepinow, that the administration of the lipoid of red corpuscles to rabbits, which had been abundantly bled, produced a very rapid regeneration of the red corpuscles.

The lipoids of the heart, kidneys and adrenal bodies give results that are absolutely comparable with those obtained with the ovarian and testicular lipoids. In the case of the adrenal bodies, the results are different accordingly as one administers the lipoids of the cortex or the medulla: increase in the heart and the adrenal bodies, slight increase in the size of the kidneys in subjects treated with the lipoids of the medullary portion; no increase in the heart or in the kidneys, slight increase in the adrenal bodies in those treated with the lipoids of the cortex; at the same time, disturbances in the hair system and in skin pigmentation.

As to the liver, I have extracted a lipoid which is not only an excitant to the liver but which exercises a remarkable influence on the growth and weight of the animals treated. If Vitamine A exists, which is very doubtful, it is in the liver lipoids that it is found in greatest abundance. It was these first experiences which led me to inquire whether the action of codliver oil, not only as a promoter of growth but also as a completer of the diet, was not due to its lipoids. My researches on this subject, as I have stated, have fully demonstrated that the characteristic properties of this oil are due to the hepatic lipoids contained in it.

Animals suffering from undernourishment due to a regimen deprived of lipoids recover very rapidly when given hepatic lipoids. Moreover, young rabbits treated with injections of two centigrams of these lipoids daily for 130 days increased in weight 59 percent, while the controls only increased 29 percent.

Confirmatory Observations

Some of the facts which I have observed have been noted by Fellner, who, after injecting ovarian lipoids into young rabbits for two or three weeks, found marked hypertrophy of the uterus with hypertrophied mucous glands presenting lengthened cylindrical epithelial cells. Tests made by this same author, in women with the ovarian lipoids and on men with the lipoid of the testes, gave him results of the same order as those observed in the experiments on animals.

Hermann injected the lipoid of the corpus luteum into three young rabbits and obtained congestion and hypertrophy of the uterus and, at the same time, an abundant serous secretion of the mammary glands. He noted also that this lipoid reduced the rut cycle to two weeks, whereas it is normally a month. He obtained results of the same order on castrated animals. These presented considerable hypertrophy of the uterus and the mammillæ, together with a serous secretion.

All my experiments with the ovarian lipoids have been repeated by Nafilian, who confirms them in every particular. Moreover, he experimented with the ovarian lipoid on pregnant females and observed that not only did the ovarian lipoid cause no trouble in the normal course of gestation, but the young weighed at birth more than those of animals which were not treated. He noted that the mammillæ of the mother who had been

treated were gorged with milk.

The Action of Lipoids

What is the mechanism of the action of the lipoids? Before trying to answer this question, we should give prominence to two important facts:

The first fact is, that the quantity of lipoids contained in an organ diminishes in the majority of cases when the organ is diseased. Whereas one finds in the normal fresh liver of an adult about 60 percent of lipoids (the part which is insoluble in acetone), scarcely 20 to 45 percent is found in the case of Laennec's cirrhosis. The quantity of lipoids is diminished even when the organs are subject to fatty degeneration. Koch and Mann, Carbone and Pighini found an impoverishment in lipoids of the brains of numerous subjects who had succumbed to chronic affections of the nervous centers. The same poverty of lipoids was found by Mott and Barratt, Haliburton, in the marrow of tabetics, by Ambard, Rathery and Schaeffer in renal sclerosis, by myself in the liver in cases of phosphorus poisoning.

A second very important fact which must be recognized is that, when a lipoid is administered to an animal, the lipoid electively goes to and fixes on a determined organ. As far back as 1907, Franchini had shown that lecithin, administered orally to rabbits, was fixed exclusively by the liver and the muscles and not at all by the brain, although this organ is the most lipotropic of the organism.

These experiments also proved that lecithin traversed the digestive tube without being altered by the lipolytic ferments, a fact which has been confirmed by Stassano and Billon as well as by Terroine. Salkowski wanted to know whether the brain, which is unable to fix lecithin that does not enter into its constitution, was able to fix one of the lipoids of which it is constituted. He tried the sahidine of Frankel, one of the most important constituents of cephaline. He was able to determine that, after four days of administering this lipoid orally, the quantity of lipoidic phosphorus in the brain was augmented, that the liver did not fix any sahidine and that this appeared to be fixed for the most part in the brain. In the same way, the ovaries of animals treated with the ovarian lipoid are enriched in phosphorus.

The lipoids act, then, by fixing themselves electively on the organ from which they are derived and, in the case of some of them, also in part on other organs (thyroid, liver).

The experiments on animals and chemical analysis prove that, in certain cases, our organs are unable to synthetize their constituent lipoids and that it is necessary to furnish them with them ready prepared. It is for this reason that I have named these lipoids, "Homo-Integrants." In truth, they are Homo-Aliments.

Therapeutic Use

It was quite natural to try the lipoids in human therapeutics.

Since 1910, I have tried the ovarian lipoid on women suffering from different ovarian troubles and have had the most satisfactory results.

Nafilian has treated 14 cases with the ovarian lipoid. He cites in his work 12 cases of ovariotomy, 15 of menopause troubles, 7 cases of chronic ovaritis, 3 of amenorrhea, 17 of dysmenorrhea, 4 of senility, 4 of chlorosis, 3 of divers troubles attributed to ovarian disfunction, all cured by the ovarian lipoid treatment.

Seitz, Wintz and Fingerhut made tests with the lipoid of the corpus luteum and arrived at the same conclusions as myself. The late Dr. Jacquet, of Saint Antoine, and his assistant, Debat, for a long time had a patient suffering from rebellious acne due to hypo-ovarian trouble and who was cured by the ovarian lipoid. I will not cite again the facts of the same kind noted by Fellner, Hermann, of which I have already written.

It would be tiresome to cite here all the authors who have employed lipoids with most satisfactory results. The hepatic lipoid is employed by many physicians at present in place of codliver oil. Results are more constant and more regular than with the oil. They are, moreover, much more rapid, and one notes important increases in weight after the first month in children or in adults who have a tendency to tuberculosis. The heart lipoid is perhaps the most powerful and the most inoffensive of the cardiac tonics. The lipoid of the red corpuscles, that of the brain, of the kidney, the pancreas, have their precise indications, easy to deduce from experimental facts. It is not necessary to enlarge further on this point.

Deficient Endocrines—Lack of Lipoids

In conclusion, I believe that it is difficult not to admit, at the present time, that, in many cases of deficiency of the internal secretions, it is simply a question of a lack of lipoids. Our organs, in certain conditions being unable to synthetize their own lipoids, must have

them furnished ready prepared.

It is known that the albuminoids are the better assimilated for being taken from a species nearly akin to the animal receiving them; that animal albumens are better utilized than those of vegetable origin.

At the present day, there exist wide divergencies of opinion among physiologists and doctors on the subject of the internal-secretion organs.

While the majority of physiologists consider that we have the right to admit as internal-secretion glands only a limited number, namely, the interstitial gland, the thyroid, parathyroid, the Langerhans bodies and, perhaps, the adrenal bodies, the doctors, in view of the results obtained by opotherapy with powders of organs and tissues of great variety, appear to suppose and even find that there are internal secretions in every portion of the organism. I believe that these divergencies of opinion between physiologists and doctors are entirely reconciled by admitting that, for the most part, when we practice opotherapy, we practice homo-alimentation.

The homo-alimentary theory is practically proved at the present time in the case of the lipoids which fix themselves electively in the organism.

I may add that, if the Vitamines A exist (which is very doubtful), these vitamines are to be found in greatest abundance in the lipoids of the liver and the pancreas.

There are Vitamines A which favor the growth of the whole organism, there exist local vitamines for each organ, and they are its lipoids. It is further possible that the specific nature of the lipoids of each organ is due to the nitrogenous base (amino biogene) which enters into the constitution of their molecule.

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Therapeutic Studies of Certain Incurable Diseases*

Especially of the Neuromuscular System

By PROF. C. J. PARHON, Jassy, Roumania

PROFESSOR BOUCHARD said, with full reason, that therapeutics must be pathogenetic or may not exist at all. This is an axiom that physicians should never lose sight of.

If there still exist many "incurable" maladies, it is because we possess so little knowledge concerning their pathogenesis, while the thyroidal treatment of myxedema shows what pathogenic treatment may accomplish against a disease that is incurable by measures outside of this therapy.

Lacking a well-understood pathogenesis and while awaiting it, it is well to proceed tentatively and guided by biological information. These attempts will possibly lead to a rational therapeutics by elucidating the pathogenesis at the same time.

Let us take, as a first example, primary myopathy, a disease of muscular trophicity, concerning the pathogenesis of which we have, as yet, no exact knowledge. It certainly is not due to a lesion of the anterior horns and it is admitted that the muscular fiber is directly affected. True, the discovery of intramuscular nerve fibers derived from the vegetative system (Boecke) calls for reservation in this view of the matter.

Disease of Muscle Tissue

However, let us admit it to be correct. What would be necessary to establish a good treatment for primary myopathy? First of all, it is necessary to know the biology of the muscular tissue and to learn to which intimate trouble of the trophic process the atrophy of the fiber is due.

We know for certain that, outside of the nervous system, the nutrition of tissues is regulated by the functioning of the endocrine glands, and several authors, such as Oppenheim, Spiller, Fœrster, Claude, have called attention to a glandular origin of the myopathies.

Atrophic alterations in the muscular fibers have been observed after the removal of the thymus (Matti) or after hyperthyroidization (Utterstrom). On the other hand, an athletic development of the muscles accompanied by obesity has been noted in certain cases of corticoadrenal tumors.

*Translated from the French manuscript.—Ed

Incidentally, it may be remarked that men have a stronger musculature than women.

Brown-Séquard and, more recently, Zoth and Pregel attributed to orchitic extract an excitant action upon muscular activity. Similar effects seem to appear also (in a direct manner or through the intermediation of the nervous system or the substance that unites the latter to the myoplasm) after the administration of extracts of other glands, such as, the hypophysis (Leopold Lévi and Rothschild, Urechia) and of the adrenals, while the parathyroids seem to exert rather a depressing action upon the musculature.

Here, then, are some facts already known concerning the biology of the muscular tissue and which may guide our first steps in the therapeutics of myopathies.

Endocrine Therapy in Muscle Affections

Thymic opotherapy was employed already by Marinesco in this muscular disease, though, seemingly without clear-cut effect. Basing upon the strong development of the musculature observed in certain adrenal tumors, I have long thought of the employment of corticoadrenal lipoids in the treatment of myopathies. Pende also finds it justified.

It is quite evident that it would not be well to express an opinion concerning my results until after a sufficiently prolonged experience. However, in two patients whom I subjected to this treatment, there seems to have been produced a progress in the muscular trophicity associated with an amelioration in ahe general nutrition. Several myopathic patients presented, moreover, the asthenic constitution in the production of which the corticoadrenal hypofunction seems to take a part.

One may reason by analogy in favor of testicular medication and remark that certain myopathic patients present signs of orchitic insufficiency (for instance, slight development of the hair on the face). In one of these cases, I have found, with Miss Parhon, that the Abderhalden reaction was positive for the testes (as it was, too, for muscular tissue) and my colleague Sacaloglu, in whose service this patient was being treated, subjected him to treatment by orchitic lipoids and apparently observed a certain degree of improvement.

This adrenal and orchitic treatment (and others, also, which are still to be considered) may be combined in the same patient, even though it is necessary to study patiently the individual action of each.

But, one must think of still other treatments. Thus, Allard and also Tordeus seem to have secured certain results by means of muscular opotherapy, or organotherapy.

Specific Lipoids

Iscovesco claims, on the other hand, that the lipoids of the different organs possess a homostimulant trophic action. It would, therefore, be necessary to investigate also the therapeutic effect of the muscular lipoids in the treatment of myopathies.

Again, Carnot found that organs in course of development are in a state of regeneration after the extirpation of more or less extensive portions and manufacture substances capable of stimulating specifically the division and, therefore, the multiplication of cells in these respective organs. These same substances ("cytopoietines" of Carnot) can be discovered in the serum of these animals.

The Author's Experiences

Led by these researches, I have attempted, with Savini, the treatment of two myopathic patients (brother and sister) by means of the glycerinated extract of fetal muscle. This treatment, which one might call myocytopoietic organotherapy, seems to augment the muscular strength of our patients and to inhibit the progression of the atrophy.

At the present time, I have under treatment two other patients (brothers) afflicted with the same disease.

What I have just said about the muscles, it seems to me, must be said, with some modification, for certain nervous diseases, such as the muscular atrophy of Aran-Duchenne, lateral amyotrophic sclerosis, the atrophy of the type Charcot-Marie and, perhaps, dementia precox, familial amaurotic idiocy, etc.

In these maladies, also, one must think of nervous opotherapy, since the lipoids of the nerve substance seem to localize in the nervous system after their experimental administration. One must think also of the neurocytopoietic opotherapy which seems to be destined to stimulate, if not the division and multiplication of nerve cells, at least their repair.

For the nervous affections accompanied by amyotrophy, the neurocytopoietic therapy will have to be added to myocytopoietic remedies, and this I have done recently in a patient affected with lateral amyotrophic sclerosis, who claims to be feeling better.

For the nervous system, one must likewise think of the adrenals which seem to affect the nutrition of this system. The adrenal cortex atrophies in anencephaly and this latter process is primary while the corticoadrenal atrophy is a secondary process.

It seems that the embryonal brain regulates

chemically the corticoadrenal development and that the cortical cells (of the adrenals) furnish, in their turn, a substance to the brain which is very probably lipoid in character and is necessary for its development. This embryonal brain would obtain these substances from the adrenals through the intermediation of certain hormones—"chemical messengers," according to Starling's expression.

Other opotherapeutic substances (thyroid, testes, ovary, hypophysis, may, likewise, possess utility, according to the nature of the cases.

For all these maladies, one would also think of normal serum which may contain the substances that are lacking in the patients of whom we are speaking.

One must think further of cytotoxic serums (neurotoxic); in fact, Cantacuzène has shown that hemotoxic serums employed in small doses exert a stimulating action upon the formation of blood cells rather than bringing about their destruction.

If it is permitted to reason by analogy, one must expect a similar action (upon the nervous system) from the administration of neurotoxic serum.

One would have to study (as is now being done) also the curative action of certain ferments extracted from tissues.

It is very evident that one may not hasten to cry victory and that one must not depend too much upon the affirmations of the patients when they declare themselves improved. Moreover, one must also guard against one's own individual suggestion.

These different treatments of which we have just spoken might be attempted in a great number of cases and also studied experimentally in order to formulate an exact opinion as to their action.

It is no less true that, in cases of endogenous maladies, one must administer an appropriate treatment and that this must be suggested by methods borrowed from biologic therapeutics.

The Role of Eye Strain in Headaches

By EMIL DEUTSCH, Chicago, Illinois

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IN this day and age, when specialization in medicine seems to have reached the vogue, it would appear a fitting tribute to such a common complaint as headache to be labeled as a disease *per se*. Unfortunately, this is not possible, in view of the various underlying conditions which, although often neglected by the general practitioner, call for the correction of some symptom or series of symptoms that should be looked for in various parts of the human anatomy.

Here we must concern ourselves, however, only with the relation of the eye to headache; although, in line with the subject matter, we shall touch upon various other symptoms produced by the well-known condition referred to by the patient as eye strain. That this condition has long been recognized by the oculist as an important etiologic factor causing a multitude of distressing symptoms, is, of course, too obvious for mention. It is my purpose, however, to acquaint the general practitioner with the interrelation and incidentally outline an easy manner in which to recognize and correct this condition. To accomplish this, it will be necessary to digress at times from the fast line indicated by the title, and a few subdivisions of eye conditions due to constitutional disturbances will be reviewed incidentally.

What Eye Strain Is and Does

Eye strain is a state of fatigue of the eye muscles producing, as a result, local and, very often, constitutional symptoms. However, general loss of muscular strength throughout the body as a result of disease will also cause the same loss of strength in the eye.

Eye strain of a comparatively high degree may at times give rise to practically no symptoms, while in some cases even a mild degree of refractive error will be the cause of very pronounced discomfort. It is not infrequent to find that a slight fraction of a degree corrected will produce marked relief, even if normal (20/20) vision is present but associated with eye strain due to an effort to overcome the muscular defect. Such patients, as a rule, are not conscious of the fact that they are straining. It becomes automatic with them in time. It is in such cases that one cannot encourage too highly the use of cycloplegics (atropine or its derivatives) to relax or paralyze the ocular muscles under tension. We often find that this slight medication itself, through which the eye is placed in a state of rest (so that it is not always necessary to

prescribe glasses) will frequently accomplish relief, even if not permanently.

There are certain types of cases with poor vision requiring a high degree of correction where only slight symptoms are present. Such patients are unaware of the abnormal condition of their vision and, never having reached a degree of perfection in vision, they necessarily do not realize their visual shortcomings. It remains for the oculist to discover such defect and acquaint the patient with the recognized standard of vision which theirs does not attain. The lack of symptoms is due to the fact that, no matter how much tension nature may exert upon the muscular mechanism of the eye, it cannot attain clear vision. Consequently, the muscular and nervous effort being limited, the symptoms of eye strain will be diminished in proportion.

Perhaps of the greatest importance from the standpoint of the patient is the type of poor vision due to pathological conditions of the eyeball. These cases rarely manifest symptoms of eye strain; as, here again, extra effort does not increase vision and the structures of the eye may not be functioning to full capacity. In such a case, the muscles, nerves, lens or cornea may be diseased. However, it is important to examine such individuals to see whether glasses will aid them in the improvement of vision, since such eyes already suffer poor vision due to the disease they present, and any improvement will be cause for gratitude on the part of the patient. It may be interesting to state here that blind people almost never suffer from headaches or migraine.

A fourth class of eye strain causes reflex constitutional disturbances in other parts of the body, such as (a) nervous manifestations —neuralgic pains, especially in the head, headaches, vertigo, melancholia, nervousness, insomnia, muscular twitching, diplopia; (b) gastrointestinal symptoms—nausea, vomiting and other symptoms of distress.

A fifth class includes the diseases of the eye itself influenced by eye strain—styes, conjunctivitis, blepharitis, Meibomian cysts, cross-eyes, lachrymation, muscular imbalance and spasms, retinitis, and so forth.

Symptoms of Eye Strain

Common symptoms of the eye itself that may lead us to suspect eye strain are pain in or around the eye or orbit, smarting, itching, watering of the eyes, photophobia, sandy sensation, squinting or frowning, spasm of the lids or face, blurred vision, fatigue when reading, red eyes, headaches, and so forth.

Headaches are often an expression of fatigue of eye muscles (extrinsic or intrinsic). Some individuals suffer fatigue more easily than others and some are more prone to nervous manifestations than others, and may develop headaches, especially when the eyes are called upon for undue work, such as reading, shopping, sewing, the theater, looking at moving objects or people, and so forth. Such types of headaches are usually relieved by rest or sleep. Then there are types of headaches in the frontal region which occur upon arising and last two or three hours. These are usually characteristic of sinus disease. Sinus disease does not necessarily manifest itself by pus in the nose; it may be only a closure of the frontal duct.

Types of Headache Due to Eye Strain

As to types of headache, it is found that ocular headaches are almost invariably orbital, frontal, temporal or occipitotemporal. It is within the province of the general practitioner, therefore, to be of great help to the patient immediately upon his first opportunity to observe such headaches, to differentiate them categorically from the other classes of headaches not amenable to visual correction. It might not be out of place to emphasize the fact that a mere assurance on the part of the patient that glasses have already been procured for the purpose of correcting the condition should be accepted with only the greatest reserve. It is incumbent upon the examining physician to feel personally convinced that the lenses have been obtained after a thorough scientific examination.

An important point worth mentioning is that it is hardly possible to measure the exact amount of error in most children or young people without the aid of cycloplegics. In older persons, these are not imperative, but also frequently necessary. Another factor that is often overlooked in examining a patient for eye strain is the investigation as to external muscle imbalance.

Effect of Diseases on Eye

To emphasize the necessity of cooperation between the general practitioner and the oculist, it would suffice to point out a few important and practical facts in general disease which may affect the eye or manifest themselves through the eye.

1.—*Diabetes.* About fifteen percent present ocular symptoms. A premature presbyopia or cataract or marked change (fluctuating) in vision may be the first symptom to lead us

to the diagnosis of diabetes. A history of frequent change of lenses due to swelling of the lens may be a forerunner of diabetic cataract. A history of iritis. Yellowish round spots in the region of the optic nerve found by an ophthalmoscopic examination.

2.—*Bright's disease* produces impaired vision, often edema of lower eyelids. Cataracts are not uncommon. Fundus examination shows white or yellowish spots in retina which often coalesce and form stellate figures found near the macula.

The chronic interstitial type is most commonly responsible for albuminuric retinitis; next in frequency is chronic parenchymatous nephritis. This condition should be recognized when changes in the fundus are still minute. In well-developed cases, it is too late by the time edema of the disk and stellate spots are looked for.

3.—*In tabes dorsalis,* the pupil, ocular muscles, the optic nerve and vision are always affected. The eye symptoms make their appearance early in some cases. Argyll-Robertson pupil may be noted long before loss of knee-jerk reflex or incoordination appears. Irregularity or deformity of the pupil is also often found. The pupil is almost always contracted, even to pin-point size. The optic nerve often shows a progressive atrophy of both optic nerves which leads to blindness. Paralysis of ocular muscles, with cross eyes, ptosis and diplopia is commonly observed.

4.—*Acute infectious diseases.* To summarize the exanthematous diseases of childhood, they practically all present some ocular manifestations in one form or another. The least that can be said is that the proper care in every cases of this type will prevent so many complications in later life of the child.

Many cases of cross-eye, chronic conjunctivitis, blepharitis, ptosis, corneal scars, poor vision and so forth could be avoided by a more rigid care of the eyes during disease and convalescence, especially after measles and diphtheria.

5.—*Wood alcohol* is known to have caused permanent blindness. It is a protoplasmic poison that possesses selective affinity for the delicate nerve tissue of the eye. The symptoms are sudden blindness, vomiting and abdominal pain, double vision or (sometimes) ptosis. The fundus may or may not show pathologic changes. The field of vision shows paracentral scotoma. The best accepted treatment so far is alkalinization, lavage, emetics, diaphoresis. Some report good results with thyroid or pituitary extract.

6.—*Arteriosclerosis* shows changes in the fundus through the ophthalmoscope. This is an important diagnostic point, as it usually indicates similar conditions in other parts of the body, especially in the brain. This evidence through the eye may be the first to reveal the existence of this vascular lesion. It often is a forerunner of cerebral hemorrhage. It is characterized by an irregularity in the caliber of the blood vessels, constricted retinal arteries and tortuosity. The optic nerve head is usually red, the veins are crossed by the arteries, with dilatation just beyond the point of crossing. (Knockling.) We may find hemorrhagic spots in the retina. White lines around the vessel wall are also characteristic.

7.—*Exophthalmic goiter.* The combination of protruding eyes, staring expression, usually bilateral (Dalrymple's sign) widening of palpebral fissures, decreased frequency of winking (Stellwag's sign), retarded movement of upper lid when it should accompany the eye in its downward movement (Von Graefe's sign), a peculiar tremor of the lids when gently closed are some of the most important findings.

"THE medical profession could well afford to pay Coué to stay in this country." (Speaking of various 'ists and 'paths and 'pracs); "First, one of 'em seizes nothing out of the air and holds it in his hand and says to the sick man, 'See, there it is!' And, then, another grabs the sick man's knee and tells him THERE is what ails him. The sick man can see his knee; so, for a while, he's pretty contented. But, then a third comes along and he says, 'No, it's here—HERE IN YOUR SPINE!'—thereby stabbing No. 2 in the back by going for what the sick man can't see. But Coué says, 'You don't have to pay others to fool you. Fool yourself.'"—CHARLES H. MAYO, M. D.

The Principles of the Care of Surgical Patients

By GUSTAVUS M. BLECH, Chicago, Illinois

1. General Remarks

EVERY surgical operation, minor as well as major, involves certain risks. This fact is so striking that in most civilized lands the law protects individuals against operations without their consent or, under certain circumstances, that of those in authority over them.

In addition to the risks involved, the experience even of competent operators does not preclude the possibility of failure to attain the desired objective—organic and functional cure. Indeed, it is a lamentable fact that, occasionally, the original disease or diseases for which relief through surgery has been sought become aggravated, both subjectively and objectively.

It follows that every conscientious surgeon must approach surgical procedures with a sense of responsibility and do everything and omit nothing that can, in any manner whatever, contribute to the welfare of those who place their lives in his hands.

There is only one exception to this, and that is, the class of extreme emergencies, in which a few seconds' delay means certain death. Humaneness, morality and law dictate that, if it is unavoidable, every rule of modern technic can and should be violated in an attempt to save life. Only when the immediate danger has been overcome, can there be any thought of guarding the patient against the consequences incident to operations under unfavorable conditions.

To illustrate this viewpoint, let us assume that a physician confronts a child nearly asphyxiated from laryngeal diphtheria. His duty is very plain here; namely, to reach for his pocket-knife and open the trachea without a second's delay. After ingress of air has brushed aside, for the time being, the otherwise certain lethal termination, means should be taken to avert the effects of the almost certain infection, produced by the soiled hands, the knife and the patient's skin, in addition to the attempts to cure the primary disease.

Importance of Strategy and Tactics

It is with surgical operations a good deal like with war. No scientifically trained commander will rush his troops into battle without a definite plan (strategy) in the execution of which (tactics) courage, ingenuity and familiarity with certain basic principles are the factors assuring success. But, when the army is attacked suddenly and unexpectedly, there is only one thing left to do, and that is, to fight back as best one can under such a handicap.

The operating physician—the term is used advisedly—who plans an operation must be fully cognizant of the possible and probable dangers involved in the "tactical" execution of his surgical "strategy," and carry out his plan, *lege artis*, that is to say: afford the patients the best possible care and operate with precision.

Dangers of Operations in General

Fortunately for our calling, we know the enemy we are confronting. It is in exceptional cases that we are taken entirely unaware by a treacherous foe sneaking in on us from the dark.

We know that every operation, producing as it does a breech in the integrity of the integument and deeper tissues, aside of the inevitable "shock," directly exposes the human empire to an invasion by bacterial hosts. We know that the same knife which is wielded for the patient's weal also severs the vessels containing a vital fluid, the extensive loss of which gravely imperils life; we know that, in preexisting metabolic disturbances, this same knife may produce a condition of chemical toxicity (acidosis) which is even more threatening, because it proves rebellious to our defensive measures; we have seen one of our allies (weakened by certain preoperative influences) lie down and leave the empire to crumble (uremia) and, finally, there are reserves hidden away, at a time when we believe to have thoroughly surveyed the arena of battle, that come forward for renewed attacks, when we felt victory was secure (complications).

Shock

We are not here concerned with the milder forms of shock, local suppuration, minor and easily controlled hemorrhage and the "complications" due to reactions on the part of the human body, because these are the inevitable incidents of every operation, scarcely exceeding the significance of physiologic processes of the operated human being. It is a different matter, however, when "shock" threatens to inhibit the great nerve centers, when hemorrhage becomes serious enough to jeopardize life, and when the invading bacterial hosts overcome the leucocytic defenders, and not

only deploy virtually unopposed in all directions but devastate the human body until its life is stilled forever in death.

And, finally, what availeth it to wage war, even if immediate defeat is avoided, if a victory brings us thistles instead of ripe and refreshing fruit?

Defensive Resources

Having sketched the dangers, let us take a fleeting glance at the defensive resources at our disposal.

We, alone, would make sorrowful warriors, even if in all combats we were led by the great law of "*non nocere*," were it not for our great ally—*vis medicatrix naturæ*. This same loyal handmaiden, who is more important to the internist than his entire armamentarium, proves also a faithful nurse to the externist. But, she is not all-powerful, and a wise operating physician will be able to estimate the amount of aid he may expect from her.

The following two typical cases illustrate what we have in mind, and are here given with the understanding that they do not typify inexorable laws; for, in surgery like in many other disciplines, there are no rules without exceptions.

Case 1. A robust blacksmith, aged 32, has just partaken of a hearty meal, a few minutes after the conclusion of which he is stricken with sharp, colicky pains. As he has never been sick before, his wife believes that there was something wrong with the food and she administers all sorts of purgantia. It is only when they fail and the patient appears to her rather seriously ill that surgical aid is sought. When the writer is called in consultation, hours after the appearance of the first symptom, the picture of a perforative appendicitis is so plain that immediate operation is urged and accepted.

Without more delay than was necessary to transport the patient to the nearest hospital, and without further preparation than to anesthetize the patient and disinfect the operative area, laparotomy was done. The patient's pulse became very bad the very moment the peritoneum was opened. The abdomen was virtually filled with pus, the ruptured appendix was found, brought to the surface, but not removed.

Heroic "nursing" was instituted. In spite of the tremendous toxemia, the patient made a slow but uneventful recovery.

Case 2. A farmer, aged 66, who had suffered nearly two years from prostatic hypertrophy requiring frequent catheterization, was brought to the hospital for operation. He showed urinary infection and his general condition was not satisfactory.

Accordingly, immediate operation urged by the village physician was refused, and a few days' preparatory treatment advised, and this with the distinct understanding that only a preliminary cystostomy was to be done, the enucleation of the enlarged prostate to follow about a week afterwards.

The patient improved generally under the preparatory measure, and the cystostomy was done under local infiltration anesthesia, in a few minutes. There was no perceptible change in pulse, temperature, or respiration at the conclusion of the operation. The patient was as indifferent to his surroundings and himself after the operation as he was when seen before the operation. The urine came freely through the drainage tube and appeared fairly clear throughout the day. In the evening, it was noted that the pulse was not as strong or as regular as it had been in the morning. This change was so slight that the special nurse, a young woman of good training and experience, did not notice it until her attention had been invited.

The next morning, the vascular tone and rhythm were less satisfactory, the patient more apathetic, in spite of the usual measures. There was nothing wrong with the wound or drainage and no evidence of infection beyond that produced by the catheterization before he came to the hospital, and this, too, seemed diminished.

During the afternoon, the pulse just fluttered, respirations became shallow and, within an hour, death ensued, though the exact moment could not be fixed. There is no doubt, in this case, that the comparatively minor surgical intervention proved sufficient to shorten life. While this may appear as an exceptional case, the lesson is obvious and one cannot but reflect what the result would have been if the family physician's demand to perform prostatectomy had been carried out!

We have, in the two cases cited, types of the *vis mediacatrix naturæ* at work and at rest. It is not altogether a matter of age, though the degenerative changes incident to advanced age play important roles.

Organic lesions, bacterial infections, metabolic changes, and interference with the normal or biologic functions of the body, as classified and taught by clinical medicine, show the debit side of surgical risks, while the physiologic, dietetic, hygienic and pharmaceutic agents known to scientific medicine constitute the credit side of surgery. As we shall have an opportunity to study them at rather close range, we shall conclude our general remarks with the adoption of a scheme to view our tactical resources at three different periods, viz., the preoperative, the operative and the postoperative care of surgical patients.

2. The Preoperative Care

In view of what has been said in the preceding section, it seems palpably plain that the planning of an operation, once a diagnosis of a surgical disease has been made, is the first and principal matter for careful and detailed consideration.

What do we mean by planning? Certainly not the technic of the operation, for, it is assumed, that everyone who takes the knife in his hand is master of his profession and can be depended upon to perform the work in hand in a manner which will not needlessly add to the operative risks. Bunglers are not surgeons and we are not interested in any others but real surgeons.

The plan of any operation of significance seeks to determine the time period at which it will be safest to operate, if at all.

This can be determined only by a thorough familiarity with the patient as a human being, as an individual and not merely as a case having this or that surgical lesion, and this, in turn, can be acquired only through a routine or rather a systematic examination of the patient.

Much as we are opposed to routinistic work, here we have a situation in which "red tape" reigns supreme, for two reasons: First, because a certain fixed routine prevents forgetfulness; and, second, because, through such routine, individualization is encouraged.

Orderly Examination

In other words, the justly despised manner of filling in printed cards or blanks prepared for physicians by enterprising printers or certain well-meaning but misguided societies, who seem to feel that their particular blank forms are essential to the "standardization" of the practice of medicine, and that "standardization" is the sole road to professional morality and salvation, has a justification for all preoperative investigations, simply as a reminder or "tickler" assuring completeness.

Even the case reports of really scientific investigators betray, on close examination, that the authors have pursued a definite system of investigation.

It is, of course, entirely a matter of individual opinion which particular system of investigation is best. The time has passed when a surgeon is expected or able to make a diagnosis during the first consultation; and it is a matter of indifference whether one prefers to send the patient to the x-ray laboratory first or after certain other investigations have been completed, so long as *all steps necessary to arrive at an exact diagnosis and reliable estimate of the patient's general mental and physical make-up are taken and none forgotten.*

It is, therefore, merely as a suggestion that, in the preparation of records, some such scheme as the one used by the author be adopted. When one has the means, printed cards and filing systems are convenient, but one may do good work without such expensive equipment.

Examination and Record

A sheet of paper containing the following data, pasted to the inside cover of a record book of any desired size, will answer all practical needs:

1.—Patient's name, address, telephone number, occupation, social condition, age and references (personalia).

2.—Family history (tuberculosis, hemophilia).

3.—Previous history.

4.—Present history (patient's narrative of present trouble).

5.—Examination of scalp and head. (alopecia, scars, evidences of osteitis, depressions, fontanelles, size of head).

6.—Eyes (nystagmus, strabismus, pupillary reflexes, exophthalmos).

7.—Nose (catarrh, turbinates, septum deformities).

8.—Mouth and throat (gums, teeth, pharynx, adenoids, tonsils).

9.—Neck (thyroid gland, blood vessels, adenopathy).

10.—Chest (bronchi, lungs, pleuræ, heart).

11.—Abdomen (scars, herniæ, ascites, tenderness, tumors, kidneys, liver, stomach, spleen, pelvis (gynecologic), rectum).

12.—Extremities (function, articulations, veins, phlebitis!).

13.—Nervous system (Romberg, Babinski, ankle clonus, patellary reflexes).

14.—Spine (contour, deformity, spina bifida).

15.—Pulse, temperature, respiration, blood pressure.

16.—Special: Cystoscopy, kidney function, uranalysis, blood, metabolism test, ophthalmoscopy, stomach chemism, x-rays, spinal fluid.

It may not be amiss here to invite attention to an obsolete and needless usage, and that is the recording and reporting of negative findings.

As an example, we give the following case:

N. W., aged 27, clerk, single, parents living and well. One brother, aged 29, living and well. One sister died in infancy, cause unknown. Had the usual diseases of childhood. Previous history shows no other diseases. Present history: For the past two months, patient complains of headaches, nausea, gastric distress about two hours after meals, pains radiating towards the left shoulder blade, loss of weight, nervousness and insomnia.

Examination: Head, no scars in scalp, no tenderness anywhere, fontanelles cannot be mapped out. Eyes, show no strabismus, nystagmus or exophthalmos. Teeth, apparently normal. Throat, normal. Thyroid not enlarged. Heart normal. Lungs normal. Abdomen: No hernial aperture, no tenderness on pressure in ileocecal region, palpation of liver, spleen, gall-bladder, negative. There is no effusion. Slight tenderness on pressure in epigastrium.

Urine, specific gravity 1018, reaction acid, no albumin, no sugar, no casts.

Blood, erythrocytes, 5,000,000; leucocytes, 7,000; hemoglobin, 95 percent, etc., etc.

Such a method of recording is simply a waste of time, labor, energy, and paper, and will tend to reflect on the reporter as one who resorts to padding in order to get out a respectably-sized reprint for self-advertisement.

Even the Germans, who are given to publishing lengthy case reports, embrace a whole group by one word "normal" or by two letters corresponding to our n/s, meaning "nothing special."

Compare with the foregoing the case cited below (Case 3), and note the directness of reporting noteworthy findings.

Preoperative Observation

Reverting to our subject proper, let us assume that a patient consults us for a comparatively minor surgical defect, easily cured by a simple operation which should have no mortality, and that a systematic examination showed nothing abnormal or anything that could in any way affect the surgical risk. It would seem that, in this class of cases, no preparatory measures worth mentioning are necessary and that the operation can be performed the very day of, or the day following, the consultation.

Even in such cases, a little delay may serve a good purpose, as can be seen from the following case in the author's practice:

Case 3.—M. P., aged 27, bookkeeper, complains of dragging pains due to a "rupture" on his right side. Family, past and present histories show nothing interesting. There is a reducible, inguinal hernia (direct) on the right side. Patient has never worn a truss. General physical examination negative. Pulse 82. Temperature, normal. Urine negative.

Diagnosis: Direct, inguinal, reducible hernia, right.

Treatment: Herniotomy advised.

Patient agrees to enter the hospital the same evening, but on telephonic inquiry it is learned that the operating rooms will be engaged the following morning. Arrangements are changed, postponing entry to the hospital twenty-four hours.

The evening preceding the operation, the patient is found resting in his bed, apparently comfortably. Yet, a certain lustre in his eyes, not noticed before, attracts our attention. The chart is sent for and it is noticed that the temperature is 99°F. Pulse 90.

Immediate examination reveals only one abnormality—a gurgling sound on pressure in the ileo-cecal region. We suspect typhoid fever and postpone the operation. Widal reaction proves positive and, shortly after, the appearance of abdominal roseola still further clinches the diagnosis.

The patient recovered in about a month. Three months later, he was operated on without any untoward effect. Further comment seems superfluous.

It has been remarked that the systematic examination develops individualization. This is applicable in every case coming under our observation.

Few surgeons have the means, time or assistants to make exhaustive laboratory investigations, and these need not be resorted to, except when some particular finding calls for further specialistic investigation.

The author, for example, does not pretend to take x-rays, make an ophthalmoscopic examination, a comparative blood count, a Wassermann test and the like, and the services of specialists and laboratory experts are called in when necessary.

The data enumerated in the foregoing list down to 15, should be obtained in the office. When any of the findings call for special tests or examinations, these must be supplied by competent men. Where these are not available in one's town, the hospital should be prepared to complete the work.

The data thus obtained will not only prove of diagnostic value, but show the way towards mapping out our operative plan as regards the preoperative period.

As a general proposition, it is easy enough to establish a long list of surgical contraindications, and the socalled "standing" rules in hospitals for the preparation of surgical patients have been standing so long that it would be a kindly act to all concerned if some one laid them away for a much-needed rest.

One of my friends uses a terse epigram which is worth quoting: "The rules of the hospitals should be made to fit the patients and not the patients to the rules."

Fortunately, every patient is a law unto himself. We say fortunately, because just this circumstance raises the practice of surgery from a craft to an art.

(To be concluded)

Bichloride of Mercury Poisoning

Outlining the Carter Method of Treatment[1]

By THOMAS A. CARTER, Chicago, Illinois

WHEN a banker at Macon, Ga., took bichloride of mercury by mistake, some twelve years ago, offered a million dollars to any physician who could save his life, and died on the 14th day, I predicted an epidemic of poison cases, and, as there was at that time no known antidote for such poisoning, I began some experimental work along that line.

My first paper on bichloride poisoning was read before the Chicago Medical Society on March 4, 1913. At that time, I stated to the medical profession that the treatment was only in the experimental stage or, rather, offered as a hypothesis. As hypotheses are not statements of truths but instruments to be used in the ascertainment of truths, of course, no unverified hypothesis should be accepted for truth. As, at that time, I only reported ten cases, my treatment was not taken seriously. However, as soon as a hypothesis can be accepted, it ceases to be a hypothesis or even a theory and passes into the rank of ascertained facts.

Today, I report my experience in the treatment of 128 cases, with the loss of but 11, and I have also received numerous reports where patients have recovered following the use of my treatment by many other physicians.

In my perusal of these cases, I have come upon many interesting facts, obtained through careful study not only upon my own cases but through attending post-mortem examinations conducted by the coroner's office and going over the records of poison cases occurring in Cook County during the past twelve years.

We cannot deny that bichloride of mercury has a specific action upon the kidneys, but this action and destruction is not nearly so marked as our textbooks and old teachings would have us believe.

When taken by mouth, bichloride may be recovered in many parts of the body—the stomach, intestines, liver and kidneys.

Bichloride of mercury does not kill its victim by its action upon the kidneys alone; it has a very definite action upon the stomach and intestines. When taken per mouth, upon entering the stomach, an albuminate of mercury is formed which is somewhat insoluble and slowly absorbed. Where a large dose has been taken, mercury may be found throughout the intestinal canal and may even be eliminated per rectum.

Throughout the entire intestinal tract, including the mucous membrane of the mouth and esophagus, there will be found areas of marked necrocytosis followed by minute hemorrhagic areas which continue to enlarge, a slight bleeding at first, later becoming a marked hemorrhage. Blood may be first noticed in the stool or the patient may expectorate a slight amount of blood, or there may be bleeding of the gums. These cases generally terminate in death.

Hemorrhage Difficult to Control

In this group of cases, there is very little if any change in the blood picture, coagulation time running from two to three or four minutes. Hemorrhage is not controlled by any of our drugs or serums. I have tried everything. My many interested friends have made many suggestions which have been thankfully received and carried out. But they have failed to save the patients.

Blood transfusions are indicated and, if given on the first signs of hemorrhage, great good is done. These hemorrhagic conditions develop from the eighth to the fourteenth day and generally follow in cases where active treatment has been delayed. I have not had a hemorrhage develop where the patient came to me within the first 48 hours. There is such a marked destruction of the mucous membrane that it is my opinion that small blood vessels are denuded and, once this fatal hemorrhage gets under way, nothing can stop it.

A typical case of this kind came to me on February 26th of last year. Six days before coming to me, the patient had placed a 7 7/10-grain bichloride tablet into her vagina upon suggestions of a department store employe. When I first saw her, she had experienced a marked absorption which manifested itself throughout to a vast degree. It seems impossible to believe that such severe gastro-intestinal symptoms could be present. The woman died on the eighth day, but voided 42 ounces of urine 24 hours prior to her death. Post-mortem examination showed destruction of stomach and intestinal linings, with blood present in both stomach and intestines.

The Author's Method

In outlining the treatment for bichloride of mercury poisoning, I will not go into the experimental stages. The drugs used in this treatment are sodium acetate ($NaCH_3COO$)

[1]Read before the North Side Branch, Chicago Medical Society, January 4, 1923.

and sodium phosphite (Na_2HPO_3); *not* sodium phosphate. When I first wished to use sodium phosphite, I found that it was an unused drug and had been taken from the list of usable drugs years ago, so that it was necessary to have the drug especially obtained for my use. Many other physicians throughout the world have used my treatment with success; a few have failed, the failure generally occurring where other methods of treatment have been tried in conjunction with mine.

I have studied this method of treatment very carefully and have a reason for every step in the treatment. Also I have been liberally supplied with suggestions. Generally, though, where I followed a suggestion, the patient was lost. So, in all fairness, I ask the users of my method to follow it carefully and, should they fail to save their patient, I should appreciate a report of their case.

The outline here given is typical of the orders written on the hospital chart for an average case, say, one who has taken from 5 to 50 grains of the poison, with a few explanatory notes to follow.

Treatment

No. 1. Immediate gastric lavage, using plenty of water. Do not give eggs and milk.

No. 2. Carter's antidote:

(Sodium phosphite, grains 6
Sodium acetate, grains 4

Tablets 2, crushed, in one-half glass of water, every hour, day and night.)

No. 3. Saline laxative ("Abbott") or citrate of magnesia, q. s. so that patient has two to three movements of the bowels each day.

No. 4. Clean mouth and teeth thoroughly and frequently with an alkaline solution, such as liquor alkalinus antisepticus or milk of magnesia.

No. 5. Measure and estimate all urine voided, totalling each 24 hours. (This is my guide: If urine is suppressed or scanty, increase dose of antidote).

No. 6. Hot-water bags to abdomen for pain. Do not give morphine.

No. 7 Diet: None for first few days according to condition of patient. Give water freely, preferably distilled or boiled water, and continue on starvation diet until danger of gastric hemorrhage is past.

No. 8. Do not give hot baths. Have patient rest in bed for at least one week.

Explanatory Notes

Ad No. 1. (a) When albumin is added in cases of bichloride of mercury poisoning, it increases the albuminate of mercury, making it more soluble and taken up into the system more quickly. (b) If the amount of poison taken is known, then, before removing the stomach tube, administer through the tube ten times the amount of antidote dissolved in water. Keep the amount in excess—the antidote is non-toxic.

Ad No. 2. The antidote must be given 24 hours a day in order to keep a fresh solution of it continually passing through the blood stream. Mercury has been recovered, as mercury, post mortem, several days after taking and has been found in the liver, stomach, intestines and kidneys.

Ad No. 3. Saline is given to aid in elimination. Where large amounts of mercury have been taken, it has been recovered in the stool as such.

Ad No. 4. By keeping the mouth and teeth thoroughly clean, we avoid salivation. Patients taking as much as 25 or 35 grains have shown little if any salivation.

Ad No. 5. When your patient gets to voiding 50 to 70 ounces of urine in 24 hours, you may note on discontinuing the antidote that the urine drops down to a few ounces a day. The treatment should consequently not be stopped too soon.

"PHYSICIANS are some of them so pleasing and conformable to the humour of the patient, as they press not the true cure of disease; and some others are so regular in proceeding according to art for the disease, as they respect not sufficiently the condition of the patient. Take one of a middle temper; or, if it may not be found in one man, combine two of either sort; and forget not to call as well the best acquainted with your body, as the best reputed of for his faculty."—BACON.

A Successful New Treatment for Chronic Diseases

By DR. B. SHERWOOD-DUNN, Nice, France.

Officer d'Académie; Ex. Assistant Professor Tufit's University; Corresponding Member, Société Obstétrique et Gynécologique de Paris; Ex. Colonel, Army Medical Corps.

RHEUMATISM, gout, eczema, urticaria, constipation, neurasthenia, asthma, migraine, dyspepsia, catarrh, menorrhagia, dysmenorrhea, troubles of the menopause and other disorders of a chronic character, have forever been the *"bête noire"* of the physician.

What has proven a successful treatment for one, utterly fails in another, of an origin that has never been precisely determined. Their treatment has been purely empirical, but the final results that have grown out of the studies of Metchnikoff, in the production of the serum by Professor Danysz, known under the name of Entero-Antigens, is accomplishing cures that hold forth the promise of a revolution in the treatment of all forms of chronic diseases of non-contagious origin.

Medical science has for its object, to teach us why and how an organism becomes diseased, what constitutes this disease, and how a cure is effected. It is only by knowing how to answer these three questions, that it is possible to treat disease successfully, either by preventing its occurrence or by assisting the organism in making a recovery. Up to the time of Pasteur, we knew, as the cause of disease, poisons, chemically crystallizable products and venins; all are of unknown composition. But with the crystalloids they have this in common that the diseases of which they are the cause are all non-contagious in character.

With the discovery of bacteria, we began to know the origin of contagious diseases and it was shown, at about the same time, that the microbe could act as the cause of disease only by its soluble secretions or by-products which escaped at its death; that is to say, by poisons of an unknown composition, but which are analogous to the venins.

Now, although we know the cause of disease, we do not know the *mechanism* by which the pathologic state is brought about. The symptoms and anatomical lesions we recognize, but we do not know how these symptoms and lesions are produced.

Metchnikoff's Views

Metchnikoff was the first to throw light upon the mechanism of cure, especially in the infectious diseases, by his theory that the leucocytes, the only cells of the organism provided with a membrane, could absorb and digest these microbes and thus destroy the cause of the disease.

However, long before the phagocytic theory was promulgated, vaccination against smallpox, anthrax, erysipelas, carbuncle had been successful. The first practical results in the curative treatment of an infectious disease, viz.: the cure of diphtheria by antitoxic serum, was not related in any way to any conception of the phagocytic theory.

As the study of physical and biological phenomena, of the constitution of matter and its manifestations, becomes more extended and more precise, it tends to prove that the perpetual changes observed in all things consist in an uninterrupted series of decompositions and rebuildings, or syntheses, and, as the transformations of any substance must have a beginning and an end, it follows that any substance in process of change undergoes an evolution of which the different successive phases are determined by the physical and chemical properties of its constituent elements.

Decompositions follow, as a rule, a very uniform path and result in simple elements which may be considered as definite. Rebuilding, or synthesis, on the other hand, is itself subject to evolution: it leads step by step to compounds that are more or less complicated, varied and numerous, and it is impossible to predict any end to these changes.

The most complicated and most perfect product known to us is the chemical body which we may call the albuminoid particle. Its characteristic is, that it rebuilds itself as it wears out, or, in other words, that it is continually undergoing partial decomposition and at the same time reconstruction of the decomposed element by the aid of simpler elements found in its neighborhood; so that, although always in an unstable equilibrium, it constantly retains its original composition and structure.

It is easy to understand that under these conditions the particle may increase or decrease in volume, depending upon the amount of reconstructive material found in its environment. When a sufficient amount of building material is at hand, an increase in volume will ensue

and, when its volume has reached certain limits capable of modifying its conditions of normal nutrition, the particle will split into two equal parts. It is this multiplication, together with nutrition, that constitutes life.

The particle will age because, as its elements become more stable, substitution becomes slower and slower: it will die when stabilization has passed beyond certain limits, because a certain rapidity of interchange, producing a certain amount of heat, in a given time, is an indispensable condition of life. The individual may die under these conditions.

When particles find, in their surrounding medium, elements of which they are composed, they can find nourishment and can develop in a normal manner; but when, on the contrary, they find strange elements requiring fixation by their affinities, the nutritive equilibrium will be modified; and when the proportion of particles so affected among the particles composing the plasma of the cell has passed beyond certain limits, the cell itself will become diseased and may die.

Cause of Chronic Maladies

These were the ideas that led Metchnikoff to imagine a common cause for all the chronic morbid states with their periods of acute crises alternating with longer or shorter remissions as originating from antigens and determined by the state of immunity—anaphylaxis of the organism. He demonstrated to the satisfaction of the Paris Academy of Science, that most, if not all, non-contagious chronic diseases, as well as idiosyncrasies, have, as a *primary* cause, antigens of intestinal origin: As a *determining* cause, the anaphylactic state of certain tissues: as an *exciting* cause, the reflexes of the nerve centers.

The necessary experimental confirmation of this hypothesis has shown in reality that the antianaphylactic treatment is of unquestionable efficacy in all those chronic diseases in which we have been able to apply it up to date, and a long series of observations corroborates this.

These results have been obtained by non-specific antigens. The explanation of the curative action of these antigens compelled the assumption of the direct and predominating intervention of the nerve-centers.

The influence of the central nervous system upon the processes of immunity and anaphylaxis is not at the present time understood, at least from the biochemical point of view.

It is indisputable that the cells of an organism, even the leucocytes, have no individual independent life; in fact, the specific functions of each tissue, organ, gland and cell are strictly dependent, not only on the physico-chemical affinities of the substances which compose them, but also and especially on the action and condition of the central and sympathetic nervous systems and upon its conscious and subconscious reactions.

Influence of Nervous System

Syncopes, respiratory and gastrointestinal disturbances produced by emotions, whether mental or psychic, real or imagined, which simulate so accurately the syndrome of anaphylactic shock in total or in part, the chronic disturbances of general nutrition produced by grief: the increased activity of salivary or gastric secretion by the sight of certain foods: all prove that the nervous system can produce in the cells all manner of reactions without the direct intervention of any foreign product whatsoever.

In diarrhea caused by a violent emotion or in urticaria of hysterical origin, it is certainly not the direct action of the peripheral nerves which can in a few moments liquefy the intestinal contents or produce edema in different areas of the skin. These reactions in the last analysis can be the result only of physico-chemical modifications which are produced in the interior of particular cells.

We do not know the exact mechanism of these reactions, but we may assume that there is a disturbance of that metabolism which regulates intracellular nutrition and causes its capillary dilatation.

What is certain and is important to remember is, that excitations of a purely psychic order, which involve those highest nerve cells that determine conscious states, may result in functional disturbances of certain tissues or organs; that is to say, in purely physico-chemical reactions.

Experiences have shown that certain nervous excitations may produce pathologic manifestations analogous to those that produce anaphylactic shock and that anesthesia of the nerve centers may hinder these manifestations by moderating the resultant reactions and especially by hindering the secondary reaction of the organism.

We know that, when in infectious disease (typhoid fever, pneumonia, tuberculosis) nervous symptoms predominate, the process of immunization does not take place or takes place incompletely and the prognosis is therefore grave. We also know that, in antitoxic immunization, the production of antibodies is all the more rapid and abundant when the nervous sensibility of the treated animal is protected against intoxication.

The researches of Cannon demonstrated the physiological changes that follow any violent emotion, such as fear or rage: they cause a marked liberation of "epinephrin" from the suprarenal cortex and of glycogen from the liver. This sudden liberation of epinephrin, which takes place in a matter of seconds, causes in turn the production of many and varied disturbances in the organism, such as stimulation of the sympathetic nerves, increase in coagulability of the blood and in the relative proportion of red blood corpuscles.

Psychic excitations can thus produce a proved modification in metabolism and, resulting from this, a change not only in the substances contained in the suprarenal capsule but in the quantities of substances secreted.

If the facts actually known hardly permit us to understand the nature and the mechanism of the influences which different varieties of excitations of nerve centers exert upon the reactions between antigens and antibodies, we may assume that these reactions are probably never purely local, that they are always influenced by nervous states, conscious or subconscious, direct or reflex.

Chronic Intoxications Arising in Colon

Metchnikoff believed that the recurrent manifestations of chronic disorders had a common origin and with this idea he prosecuted his elaborate and extensive work upon the intestinal flora, until he was convinced that the large intestine was the chief source of all kinds of chronic intoxications. He believed and demonstrated that these intoxications were due to the development and secretions of certain bacilli and that, by modifying the reaction of the medium in which they lived, it would be possible to prevent their multiplication. He endeavored to obtain this result by creating an acid reaction in the intestine by the aid of bacteria of curdled milk.

Metchnikoff proved his theories of the origin of gastrointestinal disturbances in the normal intestinal flora, but we must not lose sight of the fact that the intestinal contents are not solely composed of bacteria, that they always contain more or less digested albuminous matter and that a congested intestinal mucous membrane may permit this matter to pass into the circulation.

We know that any heterologous albuminoid substance, if it has penetrated in the blood incompletely digested (that is, in the form of albumose, peptone or polypeptid), will behave as an antigen, and we know that any ordinary occurrence, even a slight emotion, *can make the intestinal mucous membrane permeable to these antigens, as well as to bacterial antigens.* An anaphylactic state and the disturbances resulting from it can be caused just as well by incompletely digested alimentary substances as by the intestinal bacteria or their secretions.

It often happens that, of several thousand individuals living in the same surroundings and under the same conditions, only a few become ill with typhoid fever or cholera, for instance, and one asks, why does the remainder escape infection? Why are horses, rabbits, guinea-pigs not infected by the ingestion of the bacilli of these diseases, which are pathogenic for these animals when injected into the peritoneum or into the blood?

In the case of man, we may assume a previous spontaneous immunization in certain cases, but in the animals this is very improbable. The only plausible answer is, that the large majority of individuals who escape infection, and all animals who are never spontaneously infected, are refractory to these diseases. And why? Because they either digest and completely destroy the bacilli, or they attack them not at all, because these bacilli or their secretions do not penetrate into the blood as incompletely digested albumens or colloids.

Pathogenic bacteria differ from those which are not pathogenic principally because the first can live and multiply in the blood and living tissue, while the other are destroyed by leucocytes or by proteolysis before having had the time to multiply. Yet, both will cause anaphylactic states by their albuminoids.

Methods of Immunization

The work of Pasteur, his pupils and successors, on pure cultures and on the specificity of germs in infectious diseases has led to the practice of specific preventive vaccination with bacterial cultures of attenuated virulence or with sterilized bacterial bodies.

The work of Roux and Yersin, and of Behring and Kitasato, on bacterial toxins and antitoxic sera, has resulted in the practice of specific serumtherapy in those maladies caused by toxins (diphtheria, tetanus, pneumonias, dysenteries, etc.).

The work of Hayem, Kraus, Belfanti and Carbone, J. Bordet, Ehrlich and others on the reactions caused in the animal organism by repeated injections of blood serum, bacterial cultures and other heterogenous albuminoid liquids, has resulted in:

1.—The conception and application, in medical practice, of Wright's specific vaccinotherapy in the treatment of acute infectious diseases.

2.—The discovery by Charles Richet of anaphylaxis and the practical application of the

specific anaphylaxis of Besredka and Steinhardt (1907).

The researches of Schmidt, Mulheim on peptones, Roger and Josué, Delezenne and Beso, Gley and Le Bas, Ancel and Bouin (1897-1917) on organ extracts, have led to non-specific tachyphylaxis: the researches of Widal and his collaborators Abrami, Brissaud, Lermoyez and others on paroxysmal hemoglobinuria; of Wolf, James W. Jobling, Pagnez, and Vallery, Radot, Pasteur and others (1910-1917) on the curative properties of peptones, autogenous sera, of heterogenous bacterial antigens in the treatment of acute or infectious diseases, have resulted in non-specific sero- or proteosotherapy.

The researches of Danysz (1912-1921) on the properties and the action on the organism of the colloids obtained by synthesis and particularly of arsenobenzenes, of which I have written before, (and my favorable deductions then made have since been fully verified)[1] proved that the phenomena of immunity anaphylaxis and of tachyphylaxis and the methods of preventive vaccination, of vaccinotherapy, of antianaphylaxis, of serobacteriotherapy and of proteosotherapy, specific or non-specific, derived from such phenomena are caused by reactions which, in principle, are of the same kind.

Non-Specific Bacteriotherapy

Researches in the etiology and nature of chronic diseases inspired by all of the preceding work, which would require a volume to describe in all their detail—have resulted in the application in practice of non-specific but selective bacteriotherapy. Its application is based upon the following considerations:

1.—Any congestion of the gastrointestinal mucous membrane may give rise to the passage into the blood of incompletely digested albumens (bacterial or alimentary) which act as antigens.

2.—Every antigen, heterogenous to the organism, will cause in this organism a state of anaphylaxis: it will be, therefore, more or less harmful.

3.—Every specific curative or preventive antigen (vaccinotherapy antianaphylaxis) will prevent or cure disease and will at the same time reinforce the specific condition of immunity anaphylaxis.

4.—If a certain number of different antigens can produce, in a given disease, the same preventive or curative result: if, for example, typhoid fever can be treated with equal success by specific bacteriotherapy or by peptone (Nolf), an attack of asthma or urticaria by the injection of a serum, by an autogenous or heterogenous bacterial preparation or by peptone: if syphilis or trypanosomiasis by atoxyl, arsenobenzene or luargol: these results will be obtained by very different doses. Where several Grams of serum or of peptone will be needed, a few hundredths of a milligram of bacterial bodies will effect the same result: several Grams of atoxyl or of arsenophenylglycin are required to produce the same effect as a decigrams of luargol.

Danysz's Findings

In order to cause a maximum of curative result, the experiences of Danysz have shown that the combination of a group of antigens will act favorably upon these groups of chronic diseases which present a group of characteristics in common.

Most if not all non-contagious chronic diseases as well as idiosyncrasies, have as a *primary* cause *antigens of intestinal origin;* as a *determining* cause, "the anaphylactic state of certain tissues"; as *exciting* cause, the reflexes of the nerve centers.

All and any medicines or methods of local or general application, which have shown themselves to be in any degree efficacious in the treatment of these diseases, act primarily through the nerve centers. The degree of their efficacy depends on their greater or less selective action upon a given nerve center or part of a nerve center.

From the *"ensemble"* of these theories and from the actual facts determined experimentally, we may draw certain conclusions, as enumerated; namely:

1.—Chronic disturbances of nutrition, which manifest themselves by different symptoms according to the organs or tissues affected, have for their common cause a state of anaphylaxis.

2.—This state of anaphylaxis arises from the introduction into the circulation of bacterial or alimentary albuminoid substances (Metchnikoff).

3.—The resulting maladies may be successfully treated by antigens taken from the normal intestinal flora. This treatment is neither antiinfectious nor antibacterial, but purely antianaphylactic.

Danysz's Multivalent Antigen

After examining the intestinal flora of a great number of individuals, the great uniformity of the microbian products upon gelose induced Prof. Danysz to produce a preparation of multivalents with which to make his clinical experiments.

[1] Luargol.—B. Sherwood-Dunn. CLINICAL MEDICINE, Chicago, Sept., 1917.

For this purpose, he chose that group which, after preliminary trials, seemed calculated to give the best results in a general application to chronic diseases.

A culture in bouillon is made of the intestinal contents: from this bouillon, on gelose, are isolated all of the cultures produced and, in proportion as they have been reproduced upon the gelose, a mixture is formed of all the varieties with the aid of a physiologic solution or water sterilized by heat. The quantity of these microbes injected or ingested is governed by weight; viz., 1-1,000 to 1-200 milligrams of microbes for the injections and 1 to 5 to 10 milligrams for ingestion.

In order to appreciate the effect that could be produced by one certain species of microbe and more particularly in gastrointestinal troubles, he treated a certain number of cases by pure cultures of the Entero- or Staphylococci of various races of B. Coli, from the group subtilis, proteus and perfringens. The results obtained were less clear and less constant, and the subtilis seemed the least active of any.

Since commencing his experiments in 1913, several thousands of patients have been treated for the following maladies:

Gastrointestinal, comprising dyspepsias, constipation, enteritis (mucomembranous), chronic appendicitis, sigmoiditis, diarrhea, biliousness.

Dermatoses: Urticaria, eczema, psoriasis, scleroderma, acne.

Lungs: Asthma, emphysema.

Arthritis: Rheumatism, gout, dysmenorrhea, leucorrhea, menorrhagia, mild chronic albuminuria, troubles of the menopause.

Nervous System: Neurasthenia, melancholia, insomnia, migraine, general fatigue.

Tuberculosis of the skin, of the mucosa, of the testicle, kidney, ganglions; and incipient cases of the lung.

In the treatment of these last, tuberculin was added to the Entero-Antigens.

[*To be concluded*]

History of Dancing Mania*

A Contribution to the Study of Psychic Mass Infection

By ALFRED MARTIN, Bad-Nauheim, Germany

IN the *Zeitschrift des Vereins für Volkskunde* in Berlin (1914, Heft 2 and 3), I published a larger article concerning the history of the dancing mania in Germany. On that occasion, I supplied a large quantity of material reproducing verbatim contemporaneous reports from the originals and occasionally from later prints; also original documents from the City Archive of Strassburg. Where these accounts were in Latin, I translated them into German.

In this manner, I have *objectively* collected the material in such a manner that later research workers of this subject do not need to go back to the original sources. Although I have not worked up this material fully, I, nevertheless, recorded my own views about the dancing mania.

As all *subjective* writing of history suffers transmutation in course of time, so it may be observed in this instance. Further studies have convinced me that I can not maintain my views, as expressed at that time, in full. I am constrained to revise them.

In this place, I purpose to write the history of the dancing mania from my present viewpoint and more in its general consideration, in view of the fact that the space at my disposal is too small to enter into every detail.

The subject is not only of interest for the history of medicine, but it is of importance for general history. It will show how the psyche of the people is dependent upon the cultural conditions of the time and how it expresses itself differently in accordance with it.

I may mention, as an instance, that the dancing mania may occur purely through suggestion.

The disease has been brought into connection with St. Vitus. Speaking of the patronates of the saints, Luther says that St. Vitus also shares in them, namely, in the miserable dancing and hopping. The expression "St. Vitus' dance" I find recorded for the first time in 1485, in the ordinances of the city of Rottweil. There it says, whoever curses another one with St. Vitus' dance (that is to say, wishes him the sickness with a curse) shall be fined six shillings. "May God give you St. Vitus," or "May St. Vitus affect you" were very customary formulas of malediction. The latter formula is found frequently in Alsatian writers of the fifteenth and sixteenth centuries.

In order to acquire St. Vitus' dance in this manner, two things are required; first, one

*Translated from the German manuscript.—Ed.

must have the *belief* that it is possible to acquire St. Vitus' dance through bewitching; second, one must know what St. Vitus' dance is. If today a man of the sixteenth century were to come to life and wish somebody else St. Vitus' dance, he would not be successful: for, people of today have never seen it and, in general, no longer believe that a disease can be wished on. "God give you St. Vitus" would not be understood by everybody. If somebody were to express the wish that another should have to dance for a year, he would be laughed at.

Formerly, that was different. It was believed that the curse could be fulfilled. The evil wish acted as suggestion, and one danced.

The Oldest Record

The oldest example is a tradition about dancing which, however, has a definitely established historical background. In the course of time, much was added in order to establish the miracle. If this additional material is removed, it still remains that, in 1021, in Kölbigk on the Wipper, near Bernburg, in Anhalt, on a Christmas night, in a grave yard, near the church (surely in conformity with a custom remaining from pagan times; the Yule-tide was the principal feast in the Germanic mythology), the peasants, both men and women, danced, singing, and thus disturbed the divine service. To admonitions of the priest to cease, they did not pay heed. Then the priest cursed them that they should sing and dance for a whole year, and they sang and danced on without pause, without eating. They had danced themselves into the ground up to their knees when they were released through the prayers of two bishops. They fell into a sleep lasting three days. Four of them died, the others retained a trembling as long as they lived and, later, traveled through the land, sick beggars, arousing pity as participants in the Kölbigk dance miracle.

A Strassburg historian, Daniel Specklin (Born 1536), refers the Strassburg epidemic of the year 1518 to the fact that the people had had St. Vitus' dance wished on them.

Original St. Vitus Dance Differs From Today's

From these stories, it may be seen that, formerly, something else was understood by St. Vitus' dance than the children's diseases of today. Chorea minor, or chorea of Sydenham, was described first by the English physician Thomas Sydenham (1624 to 1689). I possess an excellent description of chorea minor written by Prince Christian II, of Anhalt Bernburg, who observed it, in 1623, in his brother Fritz. Therefore, he described it before Sydenham. The physicians of the time did not recognize it as an independent disease. Some considered it as a nervous obstruction; others as a paralysis; still others as an asthma. The name St. Vitus' dance is not employed. Gregory Horstius (Born 1578; from 1608 to 1622 professor in Giessen, in Hesse; later, city physician in Ulm where he died in 1636) speaking of St. Vitus' dance in the old meaning of the word, mentions a girl who, according to the description, surely suffered from chorea minor. He believes that it is something *similar* to St. Vitus' dance and fears that it is something more serious. From him, we hear (*Gregorii Horstii Observationum Medicinalium Singularium Libri Quatuor*, Ulm, 1625) that some authors would not admit any convulsive symptoms in St. Vitus' dance (in the old meaning), but that they rather assumed a mental affliction with a perverse urge and wish to dance. In this they oppose the Arabic physicians (and Horstius himself). These few authors were right; for, the old St. Vitus' dance, which is also called chorea magna, is a psychosis, more particularly a *psychosis with a hysterical foundation.*

Prophylactic Dancing

In order to be free from St. Vitus' dance for a whole year, or more generally from the dancing sickness, that is to say, not to be affected for a whole year and to be protected from having it wished on, one danced, once a year, on certain days and in certain places.

Something similar is observed in baths. In the healing baths people bathe during Walpurgis night and on Walpurgis day (May 1st), more often during St. John's night and on St. John's day (June 24th), for twenty-four hours, believing that they would be free from sickness. Those who could not bathe in the healing baths (mostly natural baths, socalled thermal baths) did so at home in the bathtub. An herb infusion was added to the water in the assumption that the earth rejuvenates herself in spring and that the spring-herbs possessed a particular power; even as it was assumed also that the healing baths received new strength in spring.

Dancing on certain days in sacred places for preventing dancing sickness was observed mostly in crowds in the form of a procession. To this day, there is such a procession in Luxenburg, the Echternach hopping procession, with up to seventeen thousand pilgrims, even though the church today looks upon it as something entirely different, namely, as a severe penance. The purpose of today

(as concerns diseases) is to prevent epileptic attacks or to heal "other epileptic" diseases, since there is no longer a dancing illness in the old meaning of the word. The epileptics hop around with the others. Epileptic children are carried in arms. The well hop for the sick, even for pay.

Here again there is a parallel in bathing customs. In Schwendi-Kaltbad, sick people (especially malaria patients) were once submerged three times in succession or were placed, for a short time, into the cold bath. In 1799, it is reported that healthy persons were paid to enter the cold bath for the sick when the latter would not or could not undertake the journey to the wild and distant place.

The procession in Echternach is observed on the third day of Whitsuntide and is made to the grave of St. Willibrord. The distance is 1225 paces. Today, one jumps two steps forward and one backward. The procession lasts between two and three hours. It is under guidance of the clergy, passing through the church where they hop around the tomb of the saint. The procession contains singers and several bands. The people tie themselves together with cloths and the hopping is done according to the music which plays the proper hopping melody. Evidently, the whole thing is a very old dance.

That, originally, the procession was intended to be a defensive dance against dancing sickness, is proved through the following remark (which is claimed to be the oldest report of the procession) of the historian Brower (Died 1617). His contemporaries had, as boys, heard the oldest people tell that, after omission of the procession, the cattle in the barns had commenced to dance and had continued to dance until the procession was resumed.

The Whitsuntide dance in Echternach is very old. The Latin word *tripudium* has been translated wrongly. It means dance, and I have encountered it frequently in my studies of the dancing mania. If we translate correctly, the Abbott Thiofried (Died 1110) reports in his "Life of St. Willibrord" that, in Whitsuntide week, not only from the neighborhood but from the entire French and German province, according to ancient rites handed down from generation to generation, a countless concourse of priests and people takes place with donations and litany, with greatest reverence, dancing in honor of the saint.

A similar procession is shown in the illustration (p. 268) which the famous Fleming Pieter Breughel drew in 1564, and which belongs to the Albertina collection in Vienna. Under the drawing, Breughel wrote in Flemish: "These are the female pilgrims who must dance on St. John's day from Brussels to Muelenbeec, and when they have danced and hopped over a bridge, they remain free from St. John's disease for a whole year." Musicians may be seen in the procession. The typically hysterical women have reached their goal, the bridge, and are already greatly exhausted. Each one is held by two men. One man and one woman dance separately forward and have donations in their hands which they will deposit in the church in the background.

Here we find St. John as patron of the dancing mania which is called, after him, St. John's sickness. There are further examples of the prophylactic dance. I may remark that St. John's day is June 24th and St. Vitus' day June 15th.

Preventive Dance Repeated Annually

Horstius, mentioned in the foregoing, says, in 1636, that he had spoken with some women who annually visited the St. Vitus' chapel in Drefelhausen in the territory of Ulm (Swabia) and there danced day and night, mentally disturbed, until they were restored so that they felt little or nothing through an entire year until the succeeding May. Then they are plagued by restlessness, as they relate, so that again they are obliged, around the time of St. Vitus' day, to visit St. Vitus' chapel for the purpose of dancing. One of these women had danced there annually for more than twenty years; another one for more than thirty-two years. The women asserted that, for several weeks before going to this St. Vitus' chapel, they had suffered with tense pains in all limbs, with debility and heaviness in the head, that these symptoms had continued until they reached the accustomed dancing place. On hearing the music which was played for them, they felt obliged to dance, being more and more disturbed in their minds.

Dancing Pilgrimages to St. John's Shrine

Schenk von Grafenberg (1530-1598) city physician in his native city, Freiburg i. Breisgau (Baden), reports that, in the Breisgau, two shrines are visited annually on the day of St. John the Baptist. One is in Biessen and is sacred to St. Vitus; the other one is situated in Wasenweiler and is dedicated to St. John the Baptist. All those persons in the Breisgau and roundabout who are subject to this mania congregate there, hasten to place themselves in the order of the German round-dance (a certain dance which later was called

"Allemande"). A remarkable thing is that, generally, these people go about sad, fearsome, anxious and depressed during the month preceding the feast of St. John. In their whole body, they feel dragging, jumping pains. They are convinced that they can not be calmed and freed from this trouble if they cannot pour out this malady by dancing before the shrine of the saint. The result confirms their opinion. The dance lasts three hours and then these people are usually free from their trouble for a whole year.

What has been said indicates that hysterical persons, especially women, believed that, on the feast day of a patron saint of the dance, they were obliged to dance at a place devoted to him; that only in this manner they could be freed from the dancing mania for the succeeding year. Prior to this time, they felt drawing pains in their limbs and were psychically irritated. All these symptoms disappeared after the dance which was indulged in with disturbed psyche and with raving passion. Music was provided for the purpose. The dancers congregated the evening before the feast of the saint. They danced sometimes through the night and the day, while others continued for about three hours.

In this connection, it may be recalled that the whole public, especially the young people, came together on the eve of St. John's day to dance and follow old Germanic customs of jumping through fires.

It goes without saying that those who were afflicted with dancing mania sought help also from the patron saints of the dance in their home towns. Camerarius (Born 1537 in Tübingen, died in 1624 in Nürnberg) writes, in 1610, that, near Ravensburg, in Swabia, on St. Vitusberg, near the St. Vitus Burg (the family castle of the Guelfs) there is a St. Vitus' chapel where not long before, in certain years, the crowd of dancers sought relief by dancing, and recovered. Later, admission was prevented and the chapel was used for other purposes. After that, people ill with St. Vitus' dance no longer came.

Schenk von Grafenberg, of whom mention has been made, informs us of a second curative method which he mentions in addition to the appeal to the saint. At the same time, he presents us with a picture of the dancing mania of his time.

Pregnant women fastened a belt around their large bellies, ran along with the others, jumping and hopping up and down with surprising vehemence but without injury to the fruit. Patients assured him that dancing was produced also by music and that the officials exorcised the dance by engaging drummers and other musicians at public expense and also some very strong men who led the

maniacs about until their fury had exhausted itself. (This is indicated in the drawing by Breughel.) It is observed that the sick often tore their clothes. People clad in red they attacked. Sick persons of means had companions with them, at their own expense, whose duty it was to watch that they or others should not suffer harm. These companions were also the dance leaders in the circle of the demented participants.

As something new, we have here the second method of treatment without the saints. A practical example of this kind, the famous Prof. Felix Platter (Born 1536, Basel) mentions in his observations under the title of "St. Vits Dantz." When he was still a boy, he watched the guard leading a woman afflicted with St. Vitus' dance to a house belonging to the city. The magistrate appointed several strong men to take turns (when one had become tired, the other one spelled him) to dance with her, day and night. This lasted almost a month, with rare interruptions, and was witnessed by many people. The skin of her feet was worn off. When, occasionally, she was forced to sit down for the purpose of taking food or because she was overpowered by sleep, she moved her body, as though dancing, until she was so exhausted that she could not longer stand and was forced to cease her dancing. She was then taken to the hospital where she recovered gradually and regained her strength.

The Well Danced With and For the Sick

It was considered a Christian duty to aid the dance maniacs by joining in the dance. Thus, in 1452, in Zürich, on St. Vitus' day, before the Helmhaus (the Hall before the Wasserkirche, the holiest church of the city), a poor man danced and called to one of the spectators to help him in his need. This man danced with him and aided him thus to be delivered with the help of God and St. Mary. While he danced with the sick, four men jeered at him and the matter developed into a libel before the court.

Before that, in 1418, there had been an action at court. When some poor women danced in the Wasserkirche, there were so many spectators that their dance was hindered. A man came and pushed the curious away in order to make room.

It may be seen how necessary dancing was believed to be for the cure of dancing mania, immaterial whether or no it was done in consecrated places.

This finds its most marked expression during the dancing epidemic in Strassburg, in the year 1518, during which all remedies customary at that time were tried.

The Strassburg Epidemic

Eight days before the feast of Mary Magdalen (July 22), in 1518, a woman in Strassburg commenced to dance. She continued without interruption, day and night, for four days. Thereupon, the magistrate ordered her led to the tomb of St. Vitus which is situated in a hollow stone in Zabern, where she quieted down. While she was on the way, others commenced to dance in the city barns and, in the course of four days, there were about thirty-four men and women. Soon there were fifty passing through the city accompanied by fifers. They danced day and night and it was a miserable spectacle. The poor people begged that mass be 'read for them. Therefore, the magistrate sent word to the bishop's vicar who replied that he did not deem it necessary; for, the physicians reported that it was a natural disease and, therefore, natural remedies must be tried. However, in order to do all that could be done, he would order the priests to urge the people publicly from the pulpits to pray and call to God that he would exercise mercy and compassion. On the grain market and the horse market, dancing floors were erected. People were hired to dance with the sick to the accompaniment of drums and fifes. Nothing helped. Many danced themselves to death.

The magistrate then confined the dancers in two guild-houses and, on the next day, had them carried to St. Vitus near Zabern, in three wagons, accompanied by the guard. They went willingly and, indeed, begged to be taken. The guard rode ahead and hired priests in Zabern, since there were none in the St. Vitus' chapel. In that chapel, mass was read over the sick in groups. They received crosses and red shoes. On these, above and below, a cross was marked with holy oil and holy water was sprinkled over them in the name of St. Vitus. The patients all recovered.

From then on until St. Michael's day (September 29), dancing and drumming was prohibited in the city and in its territory. Only at weddings and during the first masses were stringed instruments permitted.

The patients were mostly women and children, although impostors also had joined them.

Of interest is the testimony of the relatives deposited before the magistrate. A teacher declared that his son had witnessed the dancing and, when he was expected to help

his father the next morning, in the school, he commenced to dance. The father locked him up until afternoon. After two o'clock, the youngster wanted to go to the dance and he had to lead him there. One man declared that, when he had returned home, he found his wife in the living room hopping up and down. As she was an epileptic, he had assumed that she was having an attack. He laid her down. However, when the poor people passed by with the fifers, she jumped up and ran after them.

The dance continued. It is said that more than five hundred persons were affected. Many danced to St. Vitus' chapel and prostrated themselves, still dancing, before the image of the saint.

On August 14, the guilds are informed that the dancing mania was commenced again and each one should lock up his afflicted relatives or take them to St. Vitus' chapel, but they should not permit the use of stringed instruments or any feast, nor were the sick allowed to wear jewels or beautiful clothes.

The city of Strassburg gave a great thanks offering to St. Vitus, namely, a wax candle, one hundred pounds in weight. When the end of September came about, there were still some sick in the hospital who were to be sent to the Saint with this candle. It was hoped that thus the end of the epidemic would be secured. Unfortunately, the dancing mania would not terminate and it was ordered, under threat of severe punishment, that the sick should be locked up or sent to St. Vitus. Subsequently, the saint was eliminated from the city ordinance, probably since he had not helped anyway, and permission was given that the sick might go to whatever saint they pleased.

A later Strassburg chronicler relates, in 1633, that all this ceased when people commenced to read the word of God; that means, at the time of the Reformation when one no longer believed in patron saints of the dance, and then the dancing mania in Strassburg stopped.

Other Forms of Dancing Sickness

When speaking of the Echternach hopping procession, we have seen that among the Catholics also the dancing mania disappeared and that, today, in that place, they hop against epilepsy and similar diseases. In the illustration, this can be proved. According to Breughel, the dancing procession in Muelenbeec (1564) took place on St. John's day against "Sint Jans sieckte"; that is to say, St. John's disease—in other words, the dancing mania. Almost a hundred years later, in 1642, the drawing was used by Hondius for several wood cuts and these were published in a book. There, however, it is no longer said that the women remained well, for one year, of the dancing mania, but "van de vallende sieckte"; that is to say, epilepsy.

A parallel to this form of dancing mania, which I have described and which has been observed in the territory from southwest Germany to the mouth of the Rhine, may be found in Italy, especially in Apulia, the homeland of St. Vitus. The first reports date from the fifteenth century and even then one spoke of the *tarantismus* as of a well-known malady. Whoever believed to have been bitten by the tarantula (a spider), usually became melancholic and as though stunned, hardly master of his mind. With the first sound of music, the sick jumped up, shouting with joy, and danced without intermission until they broke down exhausted, half dead. There was a belief that they were obliged to dance year after year and thus the cure of the *tarantati* developed into a veritable folk-feast to which one looked forward with joyful impatience. In the seventeenth century, the time of dancing and the music (the summer months) was called the small carnival of women because these were affected most.

Compulsion Ideas

The essential point of difference between these dances in Germany and the joyful, popular dances of the people on St. John's eve is that the former are compulsion-acts which are accomplished with suffering and are believed to relieve the patient from the compulsion-idea. The dance as a compulsion-act frees the patient of the compulsion-idea that he must dance. Fundamentally, it is the same idea that is found in its most terrible form in melancholia. The melancholic patient fears death and this fear of death forces him into death which thus liberates him from the compulsion-idea, however terrible the method may be.

An entirely different form of dancing epidemic is found in 1374 in Cologne, Aachen, Utrecht, Mastricht, Lüttich, Tongern and Metz, that is in the territory of the lower Rhine, around the Rhine and Moselle. Here also physicians assumed that the illness originated from natural causes and they called it mania.

Presumably, the dancers came from southern Germany (Baden), Switzerland, but there no chronicle exists concerning it. On July 16, they arrived in Aachen, danced from there

to Utrecht and, in September, to Lüttich and other towns in Belgium. Everywhere their number increased from the population and new crowds were added, coming from Germany. In Cologne, another crowd collected between August 15 and September 8. More than five hundred were dancing. From September to October, they increased to many thousand. After one year, this number diminished, although many were still seen after three and four years.

Men and women, young and old, danced, half naked, with wreaths on their heads, joining hands. They had cloths fastened firmly around their abdomens. They sang, "Sir St. John, fresh and glad, Sir St. John." They danced for half a day at one place, on streets, in churches, in houses. They were not fully conscious and had no feeling of shame before the spectators. After the dancing, they fell down, cried out with pain in the chest. They asked to have cloths around the abdomen fastened more snugly, or did so themselves, twisting them with a stick. They permitted themselves to be kicked with feet and beaten with fists. Others cried out terribly, threw themselves to the ground and moved themselves along while lying on their backs.

These were mostly people from the lower strata of the population, but rarely wealthy people or clergy. Ultimately, many impostors joined them. A sexual factor existed and, in Cologne, more than one hundred women and servant maids became pregnant.

The Psychology of It

More recent historians suggest as cause that the minds of the people had been depressed through the interdict pronounced by the Pope upon Emperor Ludwig of Bavaria and, therefore, upon the German Empire. This suppressed the offices of the clergy, so that neither absolution, nor sacrament, nor benediction could be imparted to the dying. However, in those times, an interdict was no longer enforced with such severity and, moreover, this one had been raised several decades before.

In this dancing epidemic, I see a revolution against the clergy. Revolts against the governing church and its priests were not new at that time. The Emperor Ludwig, indeed, had taken fugitive heretics from Italy under his protection at court. This had been changed under Carl IV, but the stone had been set arolling.

Then, among the lower classes, the opinion appeared that baptism was badly executed, especially by priests who kept concubines. For that reason, the common people had made up their minds to rise up against the priests, to kill them and to confiscate their goods. In four or five weeks, they hoped, the rich and, at last also, the princes would take part and then the clergy would be overthrown, and thus these poor people, tormented in their souls, danced. Who is not reminded of the dancing of the French in Paris, in 1870, after their defeat and the imprisonment of their emperor, or of the dancing Germans after the débacle of 1918? In place of the normal reaction to soul pain, we see the mad dance.

The clergy comprehended matters at once and declared that the dancers were possessed by the devil. The priests exorcised the devil, that he should leave the dancers. The suggestion was effective. Now the devil spoke out of the people and chatted with the priests. Of such conversations, several are reported. Originally, the movement is by no means "devilish." On the contrary, at first the people declared, while dancing, that they could see the Son of Mary and the open heaven. But, now, when they believed themselves to be freed from the devil, they declared that it had seemed to them as though while dancing they were in a stream of blood and for that reason they had jumped up high.

It was not always easy to exorcise the devil, and the priests tried in every way to catch the sick. One clergyman threw a ladder over the head of one dancer and pronounced at once the gospel over him. Everywhere, processions, litanies and special masses were inaugurated. Thus a psychic influence was exercised upon the masses. In many places, the exorcisms of the clergy healed about three thousand dancers. The few dancing devils who, after the epidemic proper, still afflicted some people, yielded, it is said in one report, very readily to the priestly exorcisms.

The power of the psychosis was broken. The heretics had become humbly devout and the clergy was venerated even more than heretofore by the people. As is related in another report, by Klerus of Lüttich, the clergy, at that time, came into good odor.

The Treatment of Acute Arthritis

By Means of Parenteral Protein Substance

By O. AHLSWEDE, London, England, and Hamburg, Germany

HITHERTO, the treatment of acute arthritis was limited to the various preparations of salicylates. In this idea, the possibility of a *magna therapia sterilisans* played a definite role. The attempt was made to kill the streptococci in the blood stream—unfortunately, without attaining this aim fully. Nevertheless, the possibility of influencing acute arthritis through the salicylates is firmly established.

One of the most important factors in this therapy was the necessity of preventing the frequent sequelæ of endocarditis.

Careful investigations showed that, in the treatment of acute arthritis, it was a question of stimulating the systemis reaction of cellular defense, which is accomplished by means of salicylic treatment. In this respect, salicylates seem to have an effect similar to that of cinchophen in gout. The activity of the cell protoplasm is stimulated, "activated," and, in this manner, an increased production of normal cellular secretory products is brought about. There occurs then a nonspecific reaction of the cells.

This same nonspecific stimulation of cells can be produced also by irritants of various kinds. Oil of turpentine, codliver oil, mercury, arsenic, act in the main nonspecifically by protoplasmic activation.

Even more marked and, moreover, without noticeable toxic effect is the influence of protein substances that are introduced into the body parenterally; namely, milk, casein, and others.

Consequently, the attempt has been made recently to treat acute arthritis by means of injections of protein substances and this with remarkable results.[1] Thus, Edelmann[1] administers intramuscular injections of milk in 10-Cc. doses; Heissen[1] combines this method with the simultaneous administration of salicylates. He claims, in this manner, to prevent the occurrence of endocarditis. In this, he acts in accordance with Arndt's law that, in acute diseases, large doses are suitable, while in chronic affections numerous small doses are proper.

Although Edelmann injected his 10-Cc. doses of milk daily, we believe it to be better to proceed more gently, because, occasionally, this treatment gives rise to pain and to symptoms of irritation. We administer the milk protein in 5-Cc. doses injected into the muscle and order, at the same time, salicylic preparations. Among these, the soluble acetyl salicylic acid is particularly suitable and may be given in doses up to 3 and 4 Grams per day.

For the present, it is hardly possible to do without salicylates, for the reason that, in addition to their undoubted nonspecific effect, they also exert a specific toxic action upon the streptococci and similar germs. The nonspecific effect of salicylates is enhanced if one takes account of its principal action. Salicylic acid acts centrally, like benzoic acid and aniline derivatives. By influencing the heat centers, the heat production is lowered. This action, however, is not limited to the heat center. There seems to exist a general central influence preferably upon the ganglional cells of the vegetative nervous system. Further, it is known that purely motor nerves exert trophic influence upon the muscles supplied by them.

Verworn[2 & 3] recently published his views concerning the physiological susceptibility to stimulation possessed by the cells of various kinds. He differentiates two main types of physiological susceptibility to stimulation, namely, the isobolic and the heterobolic systems.

In the isobolic systems, he includes the nerve fibers of heart muscle and the striated muscular fibers. The heterobolic systems include the ganglional cells, the smooth muscular fibers and the sensory cells. The cells of the isobolic system have a definite susceptibility to irritation. Irritants (for instance, electric currents) which are outside of this limit, do not cause reaction. Irritants which pass beyond the limit produce a maximal function of the cell. The irritation may be strong or weak, the cell will always produce energy or secretory substances to the full limit of its power. Reversely, the cells of the heterobolic type react feebly to feeble stimulation, strongly to strong stimulation. The effects of slight stimulation are cumulative, so that a series of slight irritations will produce a stimulation of the ganglional cell which will not follow upon one single stimulation. According to Rehorn, the stimulation in the isobolic system does not

[1]Heissen, 1921, *Therapeut. Halbmonatsh.*

[2]Heissen, 1915, Niederrhein. Gesellsch. f. Nt. u. Hlkde.

[3]Heissen, 1916, Deutsche medizinische Wochenschrift.

cause a diminution of the susceptibility; in the heterobolic system, however, a lessening of the stimulation is observed which is proportional to the distance.

According to our observations, the cells of the connective tissue, the endothelial cells of the vessels and the cells of the cartilages seem to belong to the heterobolic system. They are stimulated directly by electric, thermic or mechanical means, or indirectly through the trophic nerves. In order to influence them sufficiently, it is well to select numerous small stimulations which act in rapid succession.

These ideas are applied in the treatment of acute arthritis in this manner: At the beginning of the attack, 3 Cc. of milk protein are injected into the muscle. If this treatment is administered in the morning, a second injection of 4 Cc. follows on the afternoon of the same day. At the same time, the patients receive salicylic acid, best in the soluble form of acetyl salicylic acid. If a sufficient reaction occurs (consisting in chills, increased fever, increase in the number of leucocytes in the blood picture), it is well to wait from one to three days, after which two smaller injections are applied. This method is preferable to the single, early administration of 10-Cc. of milk protein. Although the larger doses of milk protein, after parenteral introduction, are usually tolerated without disturbance, disagreeable complications have been observed, and it must be kept in mind that arthritis constitutes in itself too great a danger for the cells of the body to justify a greater strain upon the power of resistance.

While Heissen[1] recommends 5 Grams of acetyl salicylic acid per day, it is usually possible to get results with 3 or 4 Grams of the soluble preparation.

In order to enhance the effect of the milk injection, the body surface may be treated with long-waved rays; best, blue light. Ultraviolet rays are less suitable in these acute affections, for the reason that they do not permeate the skin nearly so deeply.

Very good experiences may be had with the metal arc light (Mebolith). The mixed rays secured by this apparatus exert an analgesic effect in addition to producing plasma activation.

Translated from the German original.—Ed.

HARD LUCK

When I was but a monad cell,
An age or so ago,
I had a strange desire to dwell
Upon the earth below.
Revolving always in the air
I felt was a mistake,
And so kind Nature put me there—
A Tadpole in a lake.

But wriggling, wriggling in the mud,
Or water, grew too time,
And so, as I was of the blood,
A Bullfrog I became.
And just because I changed my mind
About each wished for place,
I came one awful day to find
I'd joined the human race.

Now I recall those happy days
When, bloated out with air,
I bobbed upon my varied ways
Without a thought of care.
And I remember when a Tad,
No other wish had I
But just make other wrigglers mad
To see me darting by.

Ah me, and now I am a Man
With wife and children, six;
Worse off than when I first began
And all through Nature's tricks!
And what is more than all, they say
Man is the highest state!
Right here on earth I've got to stay—
Great Cæsar! What a fate!

—From *Bohemian.*

Surgical Seminar

Conducted by GUSTAVUS M. BLECH.

Solution of Surgical Problem No. 8

THE readers will recall that, when the eighth surgical problem was submitted in the February issue, it was stated that the problem was a rather difficult one; that the case came to operation on an erroneous diagnosis, and that the final findings would be submitted without comment alongside of such solutions as may be sent in.

Frankly, I did not expect more than one or, at the best, two discussions, for the simple reason that very few general surgeons take a deep interest in brain surgery.

Imagine my agreeable disappointment to receive no less than seven contributions on this problem, of which I publish the three most interesting, in keeping with the limitation of space.

For the benefit of those readers who may not have handy their February copy, I restate the problem:

The patient is a boy, fifteen years old. He has parents who are living and in good health. He has one brother living, in good health. Two sisters died in infancy of a cause which can not be elicited. The parents are immigrants, Lithuanians, of fairly good intelligence. The mother states that the child has been in good health up to his fifth year. He had then, to judge from her description, either influenza or pneumonia. Since then, she noticed that he was not strong, that he could not walk as well as before and also that he frequently complained of severe headaches. This went on for about two years. The village physician had given some medicine and had advised him to go to a large city to enable the patient to receive scientific care, but they lacked then the means. About that time, everybody noticed that the head was becoming large and larger in size.

The subsequent story, elicited on inquiry, shows that his parents emigrated to America about eight years ago. While in New York, a spinal puncture was proposed by a physician in some "very large hospital," but refused by the mother. Later, the child could not walk at all and had to remain in bed or propped up on a chair. A priest came often to the house and gave him some instruction. In intelligence, he appeared to be the same as his brother who is his senior by a little over a year. On the advice of the priest, the patient is brought to the hospital from the country, for diagnosis.

Examination shows that, in spite of the rather miserable condition, the boy is well developed. He looks pale and lean. Osseous system well developed. Temperature, 98.4° F. Hydrocephalic head of enormous size. Sutures and fontanelles can not be mapped out.

Left arm flexed in the wrist joint, weak and thinner than the right. Both feet are in pronation. The right side of the face is less developed than the left. Pupils equal. The boy has difficulty in pushing the tongue to the left. There is horizontal nystagmus, eyes can be moved with ease, but the patient has some difficulty in turning his head to the left.

The muscles of the small fingers are atrophic on both sides, apparently more so on the left, and slow reaction of degeneration. Motions of the arms poor, the left one worse. The muscles of the legs are spastic, especially so on the left limb, rendering standing and walking impossible. Sensibility is normal. Patient has good control of the bladder and anus. Patellar reflexes are exaggerated on both sides, though more pronounced on the left. Ankle clonus and Babinski reflex present. Pupils react slowly. Patient can not see figures at a few inches distance, but can differentiate between light and darkness.

Spinal puncture shows 230 mm. pressure. A little over an ounce of spinal fluid is obtained. Patient vomits and cries out from headaches. Pulse rapid and easily compressible.

Two days later, spinal puncture is repeated, less than an ounce being slowly obtained, with the same violent reaction which lasts for two days. The violent headaches continue. Why this intense reaction? Why so little spinal fluid on puncture?

NOTE: The patient was operated on later on an erroneous diagnosis. An opportunity was afforded our readers to send in their views. Instead of a comment, the details of further observation, including post-mortem findings will be given.

Discussions

Colonel George Acheson, of Kingston, N. B., Canada, who needs no introduction to regular readers of this department, writes:

"You have presented a difficult one this time, and, on first reading, I decided to let it alone, as something beyond my limited knowledge and diagnostic ability (????!—Ed., Seminar). However, on looking over it again a few days later, I seemed to see a faint glimmer of light, and I wondered if we had not here a case of chronic cerebrospinal meningitis—a rare occurrence, surely, where life and symptoms had lasted ten years.

"My reasons for this diagnosis are:

"1.—The early history of the case: In his fifth year of life, the boy had an attack of pneumonia or influenza; in all probability, some pneumococcal infection, and we know that meningitis often follows this type of infection.

"2.—The appearance of hydrocephalus, gradually increasing, resulting from an obstruction to the outflow of cerebrospinal fluid from the fourth ventricle to the subdural space, although this might be explained as the result of pressure by a tumor of the pons or cerebellum on the aqueduct or fourth ventricle, obstructing the outflow and dilating the third and lateral ventricles. The history, I think, excludes tumor, and I would judge that this acquired hydrocephalus was caused by posterior basic meningitis, at first acute, of the cerebrospinal variety, which later became chronic.

"3.—The symptoms detailed are all such as might be expected from intracranial pressure, except possibly the presence of exaggerated patellar reflexes; for, one would look for these to be decreased or abolished. The paretic and irritative signs, being more marked on the left side, point to a greater development of degenerative changes and pressure in the right cerebral hemisphere.

"The reason why so little fluid escapes on lumbar puncture is, because there has been obliteration of the normal channels for the outflow of cerebrospinal fluid.

"The intense reaction noticed after lumbar puncture may be explained by the sudden relaxation of pressure in the upper part of the canal, with increased tension in the cavities above the occluded portion of the channel.

"Perhaps all this only shows how great is my ignorance of brain anatomy and pathology, but I submit the foregoing solution for what it is worth as a contribution to the discussion of this very interesting case."

Comment. While it was my original intention to avoid commentation, I feel that, today, more so than ever since we began this character of surgical study, I ought not, as editor of this section, to allow the contributions to appear without some comment. In a rather personal communication to the managing editor, Colonel Acheson referred to one of my previous expressions of his ability as a surgeon as "taffy", and I leave it to the readers to say whether I was justified in putting several question- and exclamation-marks in the above text. No, Colonel, I am the last man on earth to bestow praise on any one who does not merit it. Among those who know me, I have the somewhat ugly reputation of being rather hypercritical, and I say to you that your discussion is splendid. While you and I are not agreed in minor details, you have interpreted the case in a highly logical manner, and you betray either a great quality of modesty or else deliberately seek to flabbergast me by saying: Now, there, you colleague across the border, see that you come up to my standard. What is more, I confess right now that you had the correct diagnosis virtually in your hands though, even as I, you were not certain of it, because the thing is elusive in tangible dimensions. Please do not consider this "taffy". It is a tribute from one worker to a fellow surgeon.

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Dr. R. B. Gray, of Bay Shore, N. Y., who was introduced to our family in the March issue, and who does not yet know that he has been invited to become a regular collaborator, sends in a modestly worded letter saying something about lack of library facilities in the small towns, and then proceeds to give us a dissertation which convinces me that he must have a library of his own, one that cannot be stolen or destroyed.

Dr. Gray writes:

"From the general appearance of the patient, we are led to the impressionable diagnosis of hydrocephalus. We also note that one side of the face is smaller than the other and think of hemiatrophy due to porencephalus. This diagnosis could be cleared up by following the technic outlined by Danby of Hopkins. Draining the ventricles by tapping and x-raying the skull. The result is a ventriculograph which is of service in differential diagnosis.

"Hydrocephalus may complicate birth; we are not interested in that type. We are involved with the type which develops later. Hydrocephaly is essentially a disease of infancy or early childhood, as the chance of making a diagnosis after the fontanelles have closed and the sutures are firmly interdigitated is slim. So that we have (a) congenital, (b) acquired, (c) secondary. The last type may be due to any intracranial pathology, such as meningitis, tuberculoma, glioma with cystic changes, hydatid (echinococcus) or cysticercal involvement of the ventricles.

"The mental state, as compared to that of a supposedly normal older brother, is not incompatible with hydrocephalus, and the pupils reacting sluggishly but being equal, as well as the amblyopia approaching amaurosis, are symptomatic and suggestive. The abnormal hydrostatic pressure of the cerebrospinal fluid is unusual but can occur in hydrocephalus. The small amount obtained, while such a large amount is present, shows that the communication between the ventricles and the arachnoid space is cut off. The intense reaction may be due to the cranial contents

being forced towards the point of least resistance and engaging in the foramen magnum.

"The spasticity of the legs is in keeping with hydrocephalus and, in line with this, we have evidence of upper motor neuron involvement, expressed by the Babinski ankle-clonus and exaggerated patellar tendon reflex.

"To complicate this, we have the opposite type, as expressed in trophic wasting, flaccid paresis with reaction of degeneration showing lower motor neuron involvement and the change in the electrical reaction shown by the following: Instead of K C C greater than A C C : A O C greater than K O C, we get the following: A C C greater than K C C : K O C greater than A O C and an absence of reflexes. The flexion of the left hand on the wrist is possibly due to a selective action of the condition that caused the flaccid paralysis, the flexors of the arm have escaped and the extensors have not, so that, even if only of normal strength, the flexors overcome the action of the extensors and flex the hand.

"The centers in the cord for the control of the rectum and bladder are intact, as are the sensory tracts. This rules out syringomyelia, spina bifida, spinal tumors whether extra- or intramedullary.

"The headache, vomiting and optic-nerve atrophy may not be due to hydrocephalus alone, but any increased intracranial tension, (as tumor), can do the same thing, and the same may be said concerning nystagmus which, in this case, assumes the usual form, horizontal, although it may assume the rotary or the vertical type. Lesions of the cerebellum, mid-brain and tegmentum pontis also present this symptom.

"The difficulty in rotating the head may be due to the impaction of the cranial contents into the foramen magnum, or a lesion of the spinal accessory nerve. Abscess can, I think, be ruled out as there is no history to warrant its presence, nor any rise in temperature.

"When we try to analyze the causes of secondary hydrocephalus, we find that the following intracranial abnormalities can produce it: meningitis or tumor. We then find Dandy's classification useful and see that the obstructive type may press on the aqueduct of Sylvius, foramen of Lushka and Magendie, occluding them and causing the ventricles to become overfilled and to dilate.

"The other type means that the cisterns or their main branches are closed and the fluid cannot drain from the ventricles into the subarachnoid spaces. Tumor or a meningitis may also produce this. Ventriculography may clear the diagnosis.

While meningitis is a complaint met frequently in childhood, it can, I think, be ruled out as there is no history to warrant the assumption. Glioma in childhood has been reported. Tuberculoma may occur. In children, most of the tumors are posterior or infratentorial. We now must take into the case the consideration of the febrile attack when the case began. It was of sufficient severity and duration to warrant the diagnosis of pneumonia or influenza. It may have been an attack of encephalitis or poliomyelitis, but we have no history of coma or convulsion. It may have been the reaction to the invasion of hydatid or more probable cysticercus, with an involvement of the ventricles and consequent hydrocephalus.

"Diagnosis: Hydrocephalus due to obstruction caused by cysticercal infection. Porencephaly due to cerebral thrombosis and encephalitis (poliomyelitis)."

Comment.—The above is an exhaustive and able representation of the problems involved by the case under consideration. As will be seen, most of the arguments have been considered at the time, and, in spite of certain evidences, the exact diagnosis was not arrived at during life.

It is for this, if for no other reason, that the problem is highly instructive, and applicable as a precedent in similar experiences.

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I have a short and sweet letter from a physician in a small town in a southern state, which I quote in part:

"I have read with great interest your surgical problem No. 8, and I take the liberty of informing you that I am unable to diagnose the case. But, as you yourself admit that the operation came about on a mistaken diagnosis, I do not see how you expect a general country practitioner, like myself and others in my class, to benefit from such a discussion. If I had such a case, I should do exactly what the country physician in Europe has done, namely, send the patient to some surgical center for the purpose of obtaining specialistic advice. We country doctors are supposed to give first-aid care to save life. But, in serious chronic cases, especially of such a complicated and important organ of the human body as is the brain or spinal cord, I say: Hands off! I have one purpose in writing you and that does not apply to the present problem, but to some of the preceding ones. They have been very instructive to me and I have derived great benefit, both from the discussions and your comments. But, of what possible benefit can No. 8 be to me?"

My answer to such a letter went by mail. I am offering no apology for having presented a difficult case. If it inspires many towards things worthy of our scientific training and vocation in life, then my scheme of alternating the practical with purely speculative must satisfy all classes of readers. The time of publishing magazines, whose principal literary output consists of rehashing material that can be found in any textbook, has gone forever. We are no longer in the kindergarten class politically, and, in the thirty odd years that I have lived in the United States, I have seen the medical sciences ascend towards the highest peak. We need no longer go to Europe to learn. We have the mate-

rial and personnel for original work. While we are not expected to follow the footsteps of the great scientists engaged in research work, we are supposed to keep abreast of the times or else fall into the rut of that class of practitioners whose greatest scientific difficulty seems centered in knowing what prescription to write for a case of measles or acute bronchitis.

All this has been said by way of pointing out that we need the right kind of spirit. That it is not as good as it should be, I know just through this department. This journal has thousands of subscribers. Why is it that only a dozen, certainly less than twenty, send in discussions?

Surely, that much confidence can be had in the writer to realize that he would not hold up any one to ridicule. Is it really necessary to point out that I have attained an age when I seek neither laurels nor material gain, but simply desire to give my younger confrères of the English-speaking peoples the benefit—little though it be—of years of hard work and toil both in clinical experience and study? I still remember the crass ignorance and lack of skill with which I began the practice of medicine. I, too, practiced in small towns and know what it means to be subject to harsh criticism, whether merited or not. I have had failures, as every surgeon must have. I have taken every precaution to guard against them. Whenever possible, I leaned on more-skilled men until I learned enough and acquired technical dexterity enough to feel that I could solve a surgical problem with a relative degree of safety to the patient. I may not even today perform a difficult operation with the artistic skill of the great surgical virtuoso, but I can do a dissection without unduly exposing the patients to the dangers of a too-prolonged stay on the operating table. And all this came because I had the will to attain, even if I had to deprive myself of the luxuries of life. One cannot be a good surgeon and spend night after night at the poker tables or at extravaganza shows or in dance halls. One may succeed for a while in picking up a patient here and there from such sources, but whether one can hold them as life-long friends is a question. I have said all this by way of introducing a gentleman whose letter betrays a spirit which I advise all to emulate. I publish it, as it was sent me, without altering a single word. Let me introduce to you

Dr. F. B. Cullens of Ozark, Alabama: "Excuse me, I am no surgeon; but, years ago, on the 'firing line', I had to operate occasionally in an endeavor to save life. Hospitals were scarce and the clientèle poor—wretchedly poor.

"(At some later date, I may take up the question as to what is the matter with medicine today? With its ultrascientific, high-class specialistic and costly methods.)

"I am interested in Problem 8. Of course, it was encephalitis with 'dropsy of the brain' (excuse my Saxon) with intracranial pressure, more pronounced on the right side, although the whole motor cortical zone—the 'internal capsule'—is involved, invalidating trophic and motor 'functioning.'

"Etiology: The old influenza, possibly its sequelæ, or 'leavings.' These cases are usually hopeless when seen by the physician.

"I had one such case once, in a boy of six, and I offered to 'tap.' The mother declined. 'I will leave him in the hands of the Great Surgeon-Doctor,' she said, grabbing the child to her bosom. I bowed profoundly and said nothing. The child is dead long ago.

"Had she allowed me, I should have gone in there with trocar and cannula, should have hoped to reach the arachnoid space, the secreting and offending—in these cases—membrane. But I should have promised little. Should have followed up with symptomatic treatment with possibly a little iodide, codliver oil, etc.

"The nystagmus and all the symptoms you enumerate are simply pressure symptoms. There was no indication for spinal tappings, in fact it was contraindicated. Should have gone to the seat of mischief—the head.

"But, I am out of the game. Tried to get in the late scrap. Uncle Sam says: 'Too old!' Had a boy in it. My father was a confederate soldier. My grandfather was a revolutionary soldier. I come of fighting stock. I like your writings, you have a trenchant pen.

"I am using life's evening by exploits in the field of literature. I have a book now in England for publication and when 'out,' will have the publisher send your magazine a copy. Vale."

Solution of Surgical Problem No. 8

At the time this case was seen, the diagnostic methods of surgical lesions of the brain had not attained the scientific scale of today. For external reasons, costly methods of examination, especially expert radiography, could not be had. The diagnostic difficulties, even after spinal puncture, were fully realized, as it was appreciated that the case was virtually a hopeless one. Nevertheless, palliative surgical measures were distinctly indicated through the fact that the pain was horrible and not relieved by hypodermics of morphine and atropine.

The diagnosis of internal hydrocephalus seemed certain. The limited amount of fluid obtained on spinal puncture led to the only possible conclusion: The foramen of Magendie is closed or obstructed and there is no communication of the ventricles with the subarachnoid space.

The duration of the phenomena strongly suggested a congenital hydrocephalus, exceedingly chronic in character and, accordingly, slow in development. Tumor was considered and rejected. True, a tumor of the cerebellum could have compressed and occluded the foramen, but it was ruled out because, at no time, was there vertigo or the characteristic ataxia.

With all this in view, it became evident that neither lumbar puncture nor de Sanctis' permanent drainage would have proved of value, as they would have afforded no relief to the brain. Puncture of the ventricles, as practiced by Bergmann, Keen, Mayo-Robson and others, seemed logically the proper procedure. Clipault's advice, to combine this procedure with a craniectomy to decrease the cranial capacity, seemed even more promising of beneficial result. This latter plan was carried out in the hope of evacuating as much fluid as was necessary to allow the dura to collapse corresponding with the amount evacuated and, finally, to prevent the development of negative pressure. A permanent fistula, which could be opened or closed almost at will, was possible only after craniectomy.

The operation was performed in the usual manner over the right parietal tuber, the osseous prominence permitting the removal of bone of the size of the palm of the hand, which should prove sufficient to reduce the inner capacity of the skull. The dura showed no pulsation on exposure. Puncture of the lateral ventricle resulted in a strong stream of fluid, which was very clear. The puncture had to be stopped for a few minutes by occluding the instrument, because the pulse became irregular. When the sterile container registered 105 Cc. of fluid, it was noted that the dura showed some pulsation which became increased when more fluid was gradually and repeatedly allowed to escape—a total of 230 Cc. in about half an hour.

The pulse went down to 108 and, the very next day, the patient was free from headache. In a few days, even the power to discern between light and darkness seemed increased.

Two weeks after the operation, the patient complained of headache and vomited. The fistula opened, evacuating sufficient fluid to saturate the dressings. The general condition again improved.

On the twenty-fourth day after the operation, the patient became comatose, the temperature registering 107°F. Exitus at about 2 a. m.

A partial necropsy revealed many minor changes, which are of no direct interest for our purpose. Examination of the cerebellum showed it to be enlarged and cystically degenerated above. The left hemisphere formed a cavity with thin walls of yellowish color. The middle part of the cerebellum appeared filled with small cysts. A cyst containing watery fluid had partially filled also the right hemisphere.

The fourth ventricle could not be reached from the medulla, the obstruction being due to cystically degenerated tissue, grayish and transparent, which reached the roof of the ventricle. The entire growth was about the size of a tangerine, firmly attached to the floor of the fourth ventricle and extended into the brain from which it could not be sharply identified, as it appeared to extend into the brain substance diffusedly. The microscopist reported glioma.

Surgical Problem No. 10

A man, aged 43, merchant, with nothing noteworthy about his family and past history, consults you for pains in his right lumbar region and hematuria. The pains are dull, draggy in character. Other symptoms do not exist. The patient claims to have passed bloody urine for several weeks past; had consulted his family physician, who found some albumin in his urine and had an x-ray taken of the right kidney. This showed no shadows of stone.

Your immediate physical examination reveals nothing abnormal in the abdomen. Bimanual examination of the kidney is unsatisfactory to you, because of the patient's corpulence.

You notice inguinal adenopathy, slight varicocele, both on the right side. There is also some edema of the right leg. The patient denies venereal disease and claims not to have seen the varicocele and swollen leg before his first attack.

Required: 1.—Diseases to be had in mind for the establishment of a differential diagnosis.

2.—Methods of examination.

3.—Therapy, temporary and final.

The General Practitioner

Talks About Professional and Personal Problems

Conducted by WM. RITTENHOUSE.

Carefulness

"For want of a nail the shoe was lost; for want of a shoe the horse was lost; for want of a horse the rider was lost, being overtaken and slain by the enemy; all for want of care about a horse-shoe nail."—Franklin: "Poor Richard's Almanac."

IF I ever feel roused to raise a voice of protest, it is when I see how much mischief is wrought by carelessness. To contemplate how much money, food, and other resources are wasted, how many lives are lost, how many children are made cripples for life, and how many others go to the bad for lack of careful home training, should rouse us to do our part towards the development of better habits and a public sentiment to support them. I am often moved to ask why carelessness is such a nearly universal fault of the American people. We pay a staggering toll of lives and property every year to this juggernaut. If there is any national trait more wasteful than this, I do not know what it is. So "day by day, in every way," we pay this tremendous tax of lives and dollars, and at the most we grumble, but we *do* little to change it.

The fact that this enormous waste attracts so little attention is only another instance of carelessness.

If anyone questions the statement that, as a people, we are especially prone to carelessness, he needs only to exercise his observation to be convinced that many nations, even partially civilized ones, surpass us in habits of thrift and carefulness. The reason is twofold: First, we do not bring home to the guilty parties the consequences of their carelessness as we should; and, second, the abundance of material resources with which we are surrounded causes the thoughtless to feel that carefulness, thrift, and economy are not necessary; indeed, they look upon those qualities with a certain degree of contempt. The poverty in which a large part of the human race lives has a tendency to produce carefulness. They must make everything last as long as possible; so, poverty begets care and economy. This is because their poverty is not their fault, but is due to the economic conditions into which they are born. In this country, poverty does not have the same tendency to foster carefulness, because most of it is due to shiftlessness. Here, most people who will can rise above poverty. The poveray of the old world's poor and that of our poor might be contrasted thus: The former are thrifty because they are poor, the latter are poor because they are unthrifty.

Our Careless Habits

The indictment against our habits of carelessness is a long and formidable one. It would be possible to enumerate scores of ways in which we are forced to submit to this waste and loss. The following list is far from complete, but will suffice as an illustration:

1.—Every year, the slaughter of people by automobiles is growing greater, until even our easy-going authorities are waking up to the idea that something must be done.

2.—Railroad accidents are taking a heavy annual toll of lives and dollars.

3.—In the various industries, such as manufacturing and mining, thousands of workers are killed, either through their own carelessness, that of their fellow employes, or that of their employers.

4.—Fires in buildings and forest fires cause a considerable loss of life and an enormous loss of property every year.

5.—Careless coughing, sneezing, and spitting spread disease, resulting in much sickness and death.

6.—The Fourth of July celebrations used to cause a long list of deaths and maimings, and the great reduction of these in recent years shows what can be accomplished by proper legislation properly enforced.

7.—The Dead-Letter Office is a costly and striking monument to the careless ways of our people, as I shall show below.

8.—The great number of murders and robberies, reports of which fill our newspapers, are the indirect result of carelessness on the part of those who are supposed to make and enforce our laws.

9.—Doctors, druggists, and nurses are not

perfect in carefulness, because they are human, and nothing human is perfect; but, it is gratifying to be able to say that there is perhaps no class of persons who have and maintain a higher standard of conscientious care than do these three professions.

It is true, we hear now and then of some surgeon sewing up a sponge or an artery forceps in the abdomen, of druggists filling a prescription from the wrong bottle, or of a nurse giving the wrong medicine; but such cases are so rare that they do not materially affect the confidence of the intelligent portion of the public.

A druggist once told me this story; whether fact or fiction, depends upon his veracity:

"I had started a drug store in a western city and, as trade was rather slow in coming, I kept down expenses by doing without a clerk and by sleeping in the back of the store. One night, soon after midnight, I was wakened out of a sound sleep by a ring at the door-bell. It was a ten-year-old boy with a prescription. Among other ingredients, it called for a little quinine with a little acid to help dissolve it. I was very sleepy, but I put up the prescription. The boy paid me and started home on a run. After locking the door, I went behind the prescription case to put the bottles back into their places. To my horror, I discovered that I had got hold of the wrong bottle and used morphine in place of quinine. (It was in the days before the law required the red label). I rushed to the door and looked up and down the street. The boy was not in sight. I went back into the store and collapsed into a chair. I had absolutely no clew. The prescription gave no information as to the patient's residence. It had been written by a doctor living in another city, six months before. My imagination pictured myself on trial for manslaughter, and perhaps receiving a prison sentence. I never knew that so much mental anguish could be concentrated in such a few minutes. Suddenly, the door-bell rang again. The police! was my first thought. But, in a moment, I realized that there had not been time for that. I went to the door and opened it. There stood the same boy, crying. 'Mister,' he said, 'I fell down and broke the bottle. My father will lick me if I come home without it. Won't you please give me another bottle?' I reached out and pulled him in. I could have hugged him. 'All right, my boy; I'll give you another bottle of medicine, and I won't charge you anything for it, either.'

"With my heart singing with joy, like a criminal reprieved on the gallows, I put up the medicine again, gave the boy a handful of candy, and prepared to go back to bed. But, the reaction was so great that I was in a cold perspiration and trembled in every limb. I did not sleep till almost morning, and my first act the next day was, to put on my morphine bottle a grotesque label of my own devising that would be fool-proof against carelessness."

The Cost

It is obviously impossible to get complete figures showing the cost of carelessness in lives and money; but we can get an approximation that will be impressive by considering some of the points referred to in the foregoing more in detail.

The one that comes to our notice most constantly and strikingly, because daily, is the slaughter of the innocents by the reckless driver of the auto that carries death and mutilation to old and young, strong and weak.

It seems to me that, as a nation, we fail to give proper consideration to the dangerous things which we do. We would not give a railroad locomotive the privileges that would make possible the slaughter of hundreds and thousands of human beings. It is limited to rails and is not permitted to be driven except by engineers of long and thorough training. But, we give to a far more dangerous engine complete freedom of crowded streets and permit it to be driven by inexperienced persons, drunken men, boys and girls, and persons with defective eyesight and hearing. People can keep out of the way of a locomotive, for they know where it is to be found, but even the most careful pedestrian cannot always keep out of the way of reckless auto drivers, if he goes upon the street at all. True, we have laws, but they are not enforced, or, at the best, so perfunctorily and uncertainly that their effect is hardly perceptible. We seem to think that passing a law will wipe out an evil, and forget that the best laws have no value unless enforced.

Occasionally, some city is fortunate enough to have a court that does its duty, and the good effect is apparent at once.

Political pull is, in this matter as in so many others, the curse of the community. Fines are treated as jokes by wealthy speeders. Nothing short of prison sentences and heavy damages will cure the evil. We have so much consideration for the man with money that we simply cannot bear to humiliate him by putting him in jail!

In newspaper reports of automobile acci-

dents, we often see the statement that the driver was not held by the police because the accident was unavoidable. Right here is the source of a great deal of the evil. That word "unavoidable" is a very elastic one. An accident may have been unavoidable at the rate the machine was moving, but it is surely common sense to require drivers to move slowly enough in a crowded city to have the car under perfect control and to be able to stop instantly. If it is pleaded that this would reduce traffic to a snail's pace, then we say that money and time are less important than human lives. Anything would be better than the present slaughter and maiming.

Of course, we should be fair to drivers. There should be laws to punish "jaywalkers" and parents who allow their children to play in the streets or to go alone into crowded districts. Many European cities have for years had laws to inflict fines upon careless pedestrians who get into the way of traffic.

It seems incredible that any community should allow an auto to be driven on its streets by mere children and by persons who are taking their first lessons in the art, but examples are so plentiful that they occasion little surprise. It is a daily sight, especially in the outlying districts, to see half-grown boys and girls driving machines.

Last fall, on a Sunday afternoon, when the boulevards were crowded, I witnessed this occurrence: A number of cars were held up at a street crossing waiting for the signal to move. When it came, one car, instead of going forward, leaped backward crashing into the car behind it, which happened to be the one in which I was riding. The driver had reversed without knowing it. He admitted that he had had his car only two days and was learning. Such things ought not to be possible, and would not be with proper laws properly enforced. Everybody on the street is in danger from reckless and ignorant drivers.

High Mortality From Accidents

In the first 24 days of 1923, autos killed 42 people in Chicago alone and the death rate from this cause averages about two per day. On the 16th of February, it was 6. The number of injured (many crippled for life) is much larger.

In 14 states from which reports for 1922 are at hand, 8000 persons met death in auto accidents. What a furor there would be if 8000 met death in a wreck or a fire!

In the the years since 1913, the records of the Municipal Court of Chicago show that 284,000 cases were before the court for speeding or otherwise violating the laws relating to automobiles. Out of this number, only 13 were held to the Criminal Court! 1058 were sent to the House of Correction and 123,000 were fined. In a most discouraging proportion of cases, the fine was merely nominal—so small as to make the matter a joke and give wealthy speeders something to boast about.

On the steam railroads of the United States, the Interstate Commerce Commission reports for 23 years past a death roll from accidents of almost 10,000 a year, including employes, passengers, and all other persons. It is not possible to say how many of these were due to carelessness and how many were unavoidable. An old railroad man expressed the opinion to me that 90 percent were due to carelessness.

Industrial accidents mount up to a high figure, but I have no statistics at hand. During recent years, the number has been greatly reduced by legislation requiring safety devices on machinery and by better instruction of workmen in precautions for safety.

Mining accidents are still entirely too frequent; one careless workman may, and often does, endanger the lives of hundreds of his fellows.

Fires in buildings and forest fires cause a good many deaths and enormous property losses. The careless smoker is responsible for many of these; he tosses away a half-burnt match, a cigarette butt or a cigar stub, without concerning himself whether they are out or not.

In Chicago, in 1921, the fire losses were seven and one-half million dollars. In 1922, in the state of Illinois, they were twenty million dollars.

The National Board of Fire Underwriters puts the figures for the United States, in 1921, at $495,000,000 (nearly half a billion). Of this, almost $26,000,000 is attributed to "smoking and matches." The figures are eloquent.

The Forestry Service of the United States reports that every year from eight to twelve million acres of timber are destroyed by forest fires, and this great waste occurs in spite of the fact that we are using up our timber and lumber resources four times as fast as they are being grown. Forest fires are nearly all due to careless smokers, campers, and hunters; the principal exception is lightning. It is gratifying to see that both the Federal and the State governments are waking up to

the need of forest control and reforestation.

The great frequency of robbery and murder is largely due to the easy-going indifference of our legislators and our authorities whose duty it is to enforce the laws. A short time ago, Sir Basil Thomson, in control of detectives at Scotland Yard, London, was on a visit to this country, studying our methods of catching criminals. He stated that the London police seldom carry revolvers. They may if they wish, but the sale of deadly weapons is so thoroughly restricted that few criminals have them, and they hesitate about using them because, there, murder means hanging.

Last year, in England, there were 63 murders, seven of which remain unsolved. In the other 56, a conviction was secured in every instance and, when the sentence was hanging, it was carried out. Could there be a more convincing argument for capital punishment?

Why cannot we do as well in America? Because of our careless and indifferent attitude towards the whole matter. Any criminal can get firearms, and he is not afraid to use them; because, if he kills his victim, he knows that the chances are enormously in his favor of getting off scot free, thanks to crooked politicians, mushy reformers who pity him but not his victim, indifferent legislators, and, most emphatically, indifferent voters who put crooked politicians into office. Look at the case of one notorious Chicago criminal, guilty of numerous killings, convicted repeatedly, but boasting of never having spent a day in prison, and making good his boast! Why? Because the voters are too careless to remember and punish at the polls the officials who so brazenly flout justice and favor such arch-criminals.

The Dead-Letter Office

An official of the Post Office Department requests me to publish the following information, as part of a campaign of publicity to improve the service by inviting the cooperation of the public.

Every day, in the United States, 375,000 pieces of mail are held up because of careless addressing, packing, or failing to put the sender's name and address upon the wrapper. The salaries of the extra employes made necessary by this carelessness amount to over a million dollars a year, and the salaries are not the greatest part of the expense of the Dead-Letter Office.

If the public would consider the cost to every person in the nation, not only in dollars, but in delay to all the mails, the appeal of the Department would not go unheeded. But the work of the Dead-Letter Office is increasing instead of decreasing. A special effort was made by the Post Office Department before Christmas to secure the cooperation of the public. The importance of correct, complete addressing and of careful wrapping of packages was urged with greater emphasis than in previous years. But, in spite of that effort, the Dead-Letter Office reports an increase of 25 percent, over the season of 1921, of misdirected, undeliverable, and unmailable letters and parcels. Many of the latter are shapeless, their contents ruined or partly missing because of insecure wrapping or tying. And the senders are probably uttering maledictions at the inefficient postal service, when the fault is their own. And, you and I are taxed to pay for it.

Apropos of this subject, the Postmaster of Chicago invites the public to visit the new parcel-post building of the Chicago Post Office, at Canal and Van Buren Sts., and see the remarkable mechanical contrivances for handling 10,000 sacks of parcel mail per hour. With its eight miles of belt conveyors and other ingenious devices, this building of six stories and a block in length marks a new era in the handling of bulky mail and its importance and value to the postal service can scarcely be overestimated. Not only our Chicago readers, but outsiders, visiting the city, will find the building very interesting to visit. Visiting hours are from 11 a. m. to 3 p. m.

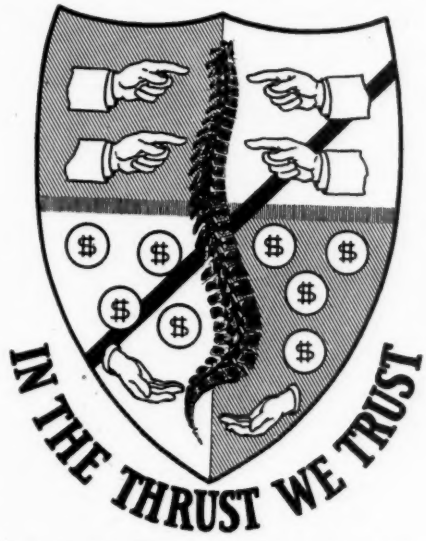
2920 Warren Ave.

Good Medicine

Let us learn as we go, but not forget what we know

Conducted by GEORGE H. CANDLER.

Talking of Adjustments



Suggested Escutcheon for Chiropractors

A Spine rampant, *or*, set upon the center of an escutcheon, with four hands at thrust, *rouge*, in dexter and sinister quadrants chief. American dollars couchant, *argent*, over field, *vert*, with two hands, receptive, *noir*, dexter and sinister base. Bend sinister* traversing escutcheon.

*Denoting Illegitimacy.

I HAVE hit the Sawdust trail—follow me, O, my brethren, ere the worm turns and evades you (it is such a nice fat one, too) and the light in the window ceases to burn! Surely, you know that while ignition proceeds "the vilest sinner may return" and be welcomed, BUT the beacon has been beckoning ever since 1895 and we must not expect it to shed its rays to show *us* the way home *much* longer. A host of really wise boys and girls (of all ages) are gathering, day by day, in that Dear Davenport, Iowa (and elsewhere), and making the proper (financial) arrangements to leave us out in the cold, cold dark! *They* have chosen the better part (the vertebral column) while we, like the Prodigal Son, have been making riotous attempts to hog the whole human body. Oh, gentlemen! *can* you not, *will* you not see, "before yet" it is everlastingly too late, that a part (if you control it) is better than the whole, and that the (more or less forcible) *laying on* of hands, or correct "thrust," is better than the *lying-in* chamber and such absurdities? Are you so wretchedly maladjusted that you cannot comprehend the grand symphonitic simplicity of the Palmerian Practice? Kan you not sense the Klarity of the Kiro-Prac-Tic Konklusions? By keen koncentration and a study of the beautiful Coat of Arms I have devised as a token of gratitude for Light received (see above), can YOU not grasp the fundamental fact that without a SPINE man would be a jelly fish? What, I most prayerfully ask you, would a man sit on, had he no spine? Where, tell me, would he carry his head—under his

arm or between his knees? How could his ribs be held in position were there no vertebral column, and, if *they* were loose, how in the name of common sense do you expect his viscera would stay where they are supposed to be?

Be honest, be frank, be rational, and admit —Oh, Doctor, you *must*—that the Spine is the very keystone of the human structure. Remove that, derange it even, and down goes the whole composite man in slithering ruin! One shudders even to *think* of the consequences.

Permit the poorest physical specimen to retain his vertebral column intact and deprive him of half his extremities, his tonsils, teeth, appendix and other unconsidered trifles, and he will still be a prodigy of physical perfection compared with a *spineless* Hercules!

"Done With the Hands"

You dare not deny it! You cannot escape that which is so definitely demonstrable. You are compelled, once you face facts fearlessly, to admit that the Spine is the very backbone of our being. Isn't it? Well, then, there you are, and the way is now perfectly clear for you to sit with me at the feet of the "GREAT" men who have thrown such an effulgent light upon dark places, and there absorb the tantalizingly titillating Truths of Chiropractic (term derived from the Greek, the *real* "old classical Greek"—and "meaning literally [see literature] "hand-done" or "done with the hands.").

Were one inclined to frivolity (which, under the circumstances, Heaven forbid!), it might be remarked that things done that way are usually *"done"* to the queen's taste. *Vide* one's collars from the hand laundries, etc. But, we have no time or inclination to exercise our *orbicularis oris* or emit Ha Ha's! from our *os* when the call of the Chiro clarions clear. No indeed; not we! We realize at last that we have done mere machine-work in *our* study of anatomy and paid a whole lot of attention to femora, pelves, flat bones, irregular bones, long bones, short bones (and, alas! certain somewhat alien, cubical and spherical osseous substances) when we should have been devoting our entire time to those twenty-six (thirty-three in early life, Doctor, remember?) distinct bones which compose the normal human spine.

Had YOU and I studied that calcified column as we should have, we would not now dare to ask ourselves (as we perchance do) "Is it the axis or the atlas which has no body but two lateral masses instead, and which of 'em has a tubercle instead of a spine and another small tubercle in front?" Or, even, perhaps: "How many centers of ossification *has* the atlas and when does the process begin, at the sixth or the seventh fetal week? And when *does* it end—at the twenty-fifth or the twenty-eighth year?" A Chiropractor who has given just one year of his life to contemplation and manipulation of the vertebral column (from the Latin verb *vertere*, to turn, I believe?) could impart that information with his eyes bandaged and hands tied behind him! Those fellows *know* their spine and can turn (L. *vertere*) it any old way to their financial advantage. What do *we* do? Ah, what indeed? We fumble things, we look fatigued and let these osteal operators wax opulent.

They (the D. C.'s) may not be on distinctly speaking terms with the *ligamentum patellæ* or shake hands very often with the *sella turcica*; but, from poor Atlas holding up the "old bean" to the coccyx (cuckoo) at the other end of the spine, they can (they will tell you so) travel blindfolded and even play five-finger exercises on the prominences. As for the laminas, pedicles and plates, they are merely "pie"—they can digitally demonstrate each and every one of 'em. *I* never could (could you?) even if I received real money for doing it. They do, however, and thus definitely demonstrate their infinite superiority. Talk to a real Davenport D. C. about the endocrine glands, the lymphatic system, Hesselbach's triangle, the *caput gallinaginis* or even the *tunica albuginea*, and he will tell you that, as none of them pass through the windows of the spine or are likely to get pinched, (should some vertebral foramen, through a subluxation, become less of a foramen than it ought to be), they are irrelevant and immaterial to the real happiness and well-being of *homo sapiens*. Ask him if the *pars prostatica* is found in the female subject and what disorders it is subject to, and he will undoubtedly inform you that he doesn't know and, furthermore, doesn't care a tinker's dam—whatever *that* is.

Why should he? He has all the information he needs, while you have your attic full of all sorts of useless furniture you can't apply daily or "cash in" on. Bacteria? Such trivial things! They *are* minute. Body chemistry? Bosh! How can you study that in the living human and of what avail are laboratory findings when they can't be proven as being exactly duplicated *in vivo*? Blood counts, urine, tissue and sputum examinations, blood pressure tests, nitrogen output and all the

hundred and one idiotic things we are guilty of doing or trying to ascertain—sometimes on very slight provocation—the Developed D. C. will refuse to discuss as entirely worthless and beneath his consideration, thereby again proving, beyond any question, his practical proficiency and preeminent priority, as it were.

The Spine's the Thing

Now, anyhow, we have certainly been convinced that the SPINE is the "hub of the body" and, as the head rotates on its axle (as one D. C. expressed it) at one end and the *cauda equina* (a foolish Latin term for horse's tail) swings at the other, why bother with such distinctly minor matters? Just get into the pay (*not* "hay," please) wagon and *thrust* out Disease. And, moreover, let people know you are doing business. Tell them so and, moreover, tell them what you can do. Trust implicitly to the Thrust—*but,* hang up the sign in your office, "NO TRUST; WE THRUST FOR CASH ONLY." Be honest with yourself—and as honest as you *can* be with other people. Why give paltry pills when you can press protuberances? Why talk about bacteria when you can bend backs? Why work like a Jamaica nigger for a dozen people each day and receive twenty-five dollars, when (see literature) "you can 'adjust' seventy-five patients per day at $1.00 (they usually get more) per adjustment?"

Evidently, *some* adjustment (at least a dollar's worth) is needed by nearly every spine in the community and, in order to keep up the income, a lot of them should be adjusted quite frequently. On Monday, let us say, Smith's axle can be rotated; Thursday, one of his lopsided dorsal lamina can be lambasted, and Sunday it would be a good idea to correct the coccygeal curve a centimeter or two. Naturally, these repairs will only last for a little while and then he'll require all those parts replaced again—if not a complete overhauling of the cervical vertebræ. There still remain the lumbar. They (the people) "get it" in just that way in the garages (especially with Lizzies); so, these frequent adjustments and replacements of their own personal transmissions become quite to be expected and rather interesting events.

Of course, it might strain *some* people's credulity to have their baldness treated by an adjustment in the region of the Horse's tail (*cauda equina,* professionally speaking) but *that* is where, at one time or another, the longest hair is supposed to have grown; why then should not the delicate sensitive neurones in this locality, if sufficiently stimulated, convey to the equally sensitive nerves of the scalp the suggestion "Grow hair, darn you! so they'll stop thrusting at *me* every day or two?" And, given such suggestion, why shouldn't the fool follicles get busy and produce new locks?

Why, indeed? Can you advance any really cogent reason why the thing shouldn't work? If you are doubtful, study Chiropractic and acquire real knowledge. Shake off the trammels of conservatism and ADVERTISE:

"HAIR I'LL RESTORE, WHERE HAIR HAS GROWN BEFORE"

You can move after six months if the neurones in your particular locality prove particularly recalcitrant.

Claim Big Things

A little thing like failure along one line (hair trouble) should not—must not—faze you, for the field is wide and the demand for adjusters great. Indeed (see literature from the "Mother School" again) "the possibilities are beyond comprehension." "We have authentic reports from our graduates (the addresses of whom we will gladly furnish) who are earning from $300 to $1000 per month and are obtaining results that in any age but this would be considered nothing short of miraculous." They would! Indeed they *are,* even today. This and very, very much more of a most convincing kind is from a dear little pamphlet entitled "OPPORTUNITY: A WAY TO WEALTH, INDEPENDENCE AND FOR YOUR HAPPINESS." It comes from the press of the MOTHER SCHOOL and invites everyone who reads to embrace Chiropractic. "In Chiropractic," says the booklet, "the practice is waiting for the practician; the demand for qualified Chiropractors is far greater than the supply. YOUR OPPORTUNITY IS STARING YOU IN THE FACE NOW. WILL YOU GRASP IT?"

Then the reader is assured that "such diseases as Rheumatism, Paralysis, Indigestion, Heart Disease, Consumption, Bowel Troubles, Insanity and a thousand other diseased conditions too numerous to mention must cease when Chiropractic is applied." The terms for tuition are moderate (very) and, as "you cannot put a money value on the wealth of knowledge we place before you" and "the instruction in palpating and adjusting so necessary to a Chiropractic education" (no one could be heartless enough to dispute that) "is so thoroughly taught that in twelve months' time the student is graduated an expert Chiropractic adjuster," who wouldn't scamper Iowaward to matriculate? And, though this par-

ticular announcement is a trifle *passé* now, just about the same—but much more effective —propaganda is under way with a view to securing for "the MOTHER SCHOOL" matriculates who in a very short time will be transformed from Blacksmiths, Bakers, Peddlers, near-mechanics, etc., into properly accredited D. C.'s —perfectly prepared to "grasp the opportunity" to adjust the Spines of the American people at one dollar and *up* per adjustment.

The Doctor's Work

After somewhat carefully considering the whole subject, I have come to the conclusion that, if the said American people want to have their atlas, axis and coccyx (together with the intervening vertebræ—"peculiar" and otherwise—pulled and pushed, why, let 'em—it's their constitutional right. But, why "let George do it"? Why not impress upon these crippled Spine bearers that even the *average* M. D. has studied the Spine and the *nervi spinales* quite as closely as the D. C. and that he also knows something at least about a whole lot of other things connected with the body and its vital processes which the D. C. never even dreamed of? Adjusting the tappets of an engine won't correct ignition faults and I don't believe that any timing trouble was ever corrected by adjusting the rear pinion. With faulty carburetion, all the monkeying with generators, batteries and spark plugs "in the world" will prove of no use whatever and the most perfect motor and running gear will refuse to develop any "pep" if the gas isn't properly proportioned with air and sprayed into the intake manifold regularly. The mechanic who has been taught how to fix up a Lizzie (some of them "fix" her all right!) will be utterly at a loss as to how to take off a disc wheel, and the "innards" of an up-to-the-minute eight or twin-six would look to him like the main plant of a Public Utilities Station! So, surely then, must the infinitely more complicated and delicate mechanism of the human body be a sealed book to him who has only for a short time studied a *part* of it—even though it be that undoubted essential, the SPINE.

THEREFORE, IF THE CHIROPRACTOR KNOWS WHAT HE IS DOING AT ALL, THE M. D. MUST KNOW A GREAT DEAL MORE AND BE ABLE TO EXTEND MUCH BETTER SERVICE IN THAT PARTICULAR FIELD. Take the D. C. out of his limited territory, and he's only fit to hold things for the Doctor while he works. No one but a born fool is going to ask the Chiropractor to deliver women, stop hemorrhages, cure specific urethritis, lues or whooping cough and, if the baby gets a bean in its nose, if father contracts the "flu", or Grandpa finds himself "unable to void," it is the Doctor who has to do things, even as he has to scamper (whistling cheerily) from place to place in all weathers and in the dead of night to assuage all the thousand and one ills which somehow don't seem to disappear even in the most efficiently Chiro'd neighborhoods. Evidently, then, it is up to the Doctor to be still ready and willing to serve his fellow men and, if some of them insist that their spines be "adjusted," why not administer the "thrust" in the most approved way and then—for your soul's sake—begin to gently educate minds which need even more attention.

Don't "with stern face and tight-closed lips" ride behind the procession reflecting, as you go, on the folly of the human race; but "get into high," sound your Klaxon and demonstrate your all-round superiority to the tin cans which make so much racket and perform so horribly! "Henrys," of course, we shall (like the mentally defective) have with us always, but you will observe that most people would —with experience—rather ride in a real car!

The great point, of course, is, to enable the blind or myopic to distinguish the can from the car. Here the HORN counts materially and, in case of doubt, sound it! Then, as occasion offers, demonstrate that, whatever a Lizzie can do, you can do much better—to say nothing about things it (or "he" or "she") can't do at all.

Of course, if a Chiropractor can in any one day palpate some seventy-five human spines (more have been claimed) and locate that number of even minor displacements or maladjustments causing impingement upon nerve-trunks or blood vessels, he must be regarded not as a "can" but distinctly as a "twin six" most perfectly tuned up and, if, in addition to this, he can *correct* that number of abnormalities, he is a Liberty engine, a "caterpillar" and a Rolls-Royce-Duesenberg-Locomobile, functioning as a unit! No ordinary Doctor of Medicine—or even two extraordinary ones—could hope to compete with *him*. Before I'd go over that number of human vertebral columns and decide that I had found something to correct, and then and there correct it for One Dollar per, I'd peddle pin-cushions at a B. P. O. E. Smoker! I might have to live on the smoke, but I wouldn't be full of "gas" all the time! That is distinctly bad for an M. D. Some people, however, thrive on it.

I have refrained from saying a number of

things that I would like to say, partly because I have no desire to use any but perfectly polite language and, further, because I haven't room to express myself here—it would take a volume. "But I *will* just venture to quote that beautiful and soul-stirring soliloquy of William Jennings Bryan—or was it Byron?—"There's a sucker born every minute and someone to skin him." It relieves my pent-up spirit to dwell on this fascinating fact, even though it has nothing to do with the main subject under consideration. I seem to suffer from these mental subluxations and must get adjusted. Therefore, the Sawdust Trail for me and a more careful consideration of the vertebral region. Your company is requested and you are perfectly welcome to assume the Korporate Kote-of-Arms—or, might one say, *Hands?* The motto may be changed to suit one's individual fancy. "From bones, 'Bones'" would be appropriate or: "We reduce anything —even your pile."

Cauda Equina

By the way, I wonder where the originator of Chiropractic secured his anatomical facts—such as he had? Did he, or any of his successors, develop anything *new*—discover a single nerve, blood-vessel, bone or foramen, unknown to or uncharted by the regular profession? Did he make any extensive dissections or enjoy a wide and varied clinical experience? Has he, or, for that matter, the whole tribe of Chiropractors, given us one *new* Truth? If so, what is it? We are earnestly seeking information.

Coccyx

Don't tell us about "Holds," Thrusts," and contracted foramina. Please spare us *that.* Anything else—especially something touching upon the treatment of Pott's, Insanity, Phthisis or Renal Tuberculosis will be received with gratitude.

Here endeth the tail.

By F. A. Weir.

Adjusted, by Gosh! But not matched-

Let's Talk it Over

Active-Principle Materia Medica

With Physiological Effects and Therapeutic Suggestions

By WM. T. THACKERAY, M. D., Fowlerton, Texas

[*Continued from March Issue, p. 219*]

Calcium lacto-phosphate

While this salt is not an essentially chemical product, it is constant in its construction, it is a positive reconstructive, especially useful to the pediatrist; indicated in rachitis, pretuberculous conditions and scrofulous swellings, anemia, and, in fact, in any state requiring a bone and tissue builder.

Dosage:—1 grain, three or four times daily.

Calcium sulphide

There is a marked difference in the samples of this salt as marketed. The Calx sulphurata of the U. S. P. contains 60 percent of the pure salt and is variable in its keeping qualities. The writer has found calcium sulphide, as prepared by The Abbott Laboratories, as being much superior to any other that has come under his observation, both in its therapeutic effects and its keeping properties.

Calcium sulphide is the internal antiseptic *per se.* The sulphureted hydrogen liberated is readily absorbed, neutralizes the toxins and increases phagocytosis.

Therapeutics:—Indicated in all infections and pustular conditions, anthrax, boils, acne, ulcers and abscesses, pyemia and septicemia.*

Prophylactic in all eruptive fevers as well as modifying their course when established.

Dosage:—1/6 to 1 grain should be given to complete saturation, in order to obtain its full benefit. One or more every half to one hour until the breath and secretions give off the odor of sulphureted hydrogen.

Calcium phenolsulphonate

(Calcium sulphocarbolate. Abbott)

While the sulphocarbolates have been and are praised by some and decried by others, as to their antiseptic powers exerted in the intestines, they have been clinically proven to be of great value in this particular direction. Notwithstanding the fact that they are soluble in the gastric secretions, they do exert a marked effect in destroying abnormal odors of the stools. We argue from this fact, *a priori,* that they exert antiseptic power.

Therapeutics:—Useful in combination with iron and zinc sulphocarbolate in all fevers, essential and symptomatic, in all cases of fermentative dyspepsias where the stools are offensive in odor. Also in acid eructations.

Dosage:—1/6 to 5 grains: In using this or any of the other sulphocarbolates, either alone or in combination, it is necessary, in order to obtain the best results, that the bowels be well cleaned out with calomel in small doses, followed by salines. Then the salt may be administered, from 2½ to 15 grains every two to four hours, to effect. Children, gr. 1/6 to 1, four to six times daily.

Calomel

(Subchloride of Mercury or Mercurous Chloride)

The physiological effects of calomel are too well known to need recapitulation here, but the massive doses of bygone days are no longer considered by the physician who has the interests of his patient in mind. And, thus we class all who are in active practice. The writer, however, does emphasize the greater value of the minimum dose frequently repeated over the larger dose as advised by many practitioners.

While the dosage, as prepared by the pharmaceutical manufacturers, is given as from 1/10 grain to 1 grain, it is the experience of the writer that the full cholagog effect will be attained if 1/10 grain be administered every half hour until three doses have been taken, accompanying the last dose with 1/6 grain of podophyllin. As the psychology of the drug should be considered, the aromatic tablet should be chosen.

Camphor monobromated

Physiological action:—It exercises a sedative action upon the encephalon and the spinal cord or both. It reduces pulse, respiration and temperature; diminishes the tactile sense of

Note: As sulphureted hydrogen is particularly obnoxious to mosquitoes, calcium sulphide offers to the hunter or fisherman a protection against their annoyance and bite, if taken to saturation as above directed.

the pharyngolaryngeal mucosa and reduces spasm.

Therapeutics:—While it has been recommended in chorea, hysteria, spasmodic and convulsive cough, spermatorrhea, nymphomania, etc., it exercises a selective action upon the sexual organs, especially of men. It finds its legitimate employment against satyriasis and priapism, against excessive irritability and excitability of the sexual organs of man or woman. Good results have been obtained in nocturnal pollutions. Here, Burggraeve advises the addition of atropine. It has proved of value in children with whooping cough.

Dosage:—1/6 to 1 grain. For children, the smaller dose three or four times daily; for adults, 1 to 2 grains every two or three hours as required.

Cannaboid

(Concentration from Cannabis Indica)

Physiological effects:—Powerful hypnotic, anodyne and antispasmodic. Active stimulant in removing langor and anxiety. The primary effect of a large dose is decidedly stimulant, producing increased arterial tension, and great exhilaration of spirits. The patient becomes talkative, sings, asks for food and declares to be in the best of health. Sometimes attended with hallucinations of an outrageous character.

Therapeutics:—Useful in nervous and spasmodic diseases, sleeplessness attendant upon chorea, sciatica, trifacial neuralgia and migraine.

Dosage:—1/6 grain: one to four every two hours, repeated as required.

Cantharidine

(The Anhydride of Cantharidic Acid)

Physiological effects:—Increased exudation of serum from the capillaries. Doses that are toxic but not lethal cause gastric burning and pain, great thirst. The salivary glands swell and discharge freely, the pulse slows, diuresis and diaphoresis appear, with strangury, tenesmus and diarrhea. The symptoms disappear in twenty-four hours and leave no trace. The drug does not excite sexual activity, while it does irritate the sexual organs without producing desire.

Therapeutics:—In acute nephritis, when the acute symptoms pass and a little albumin and blood are still to be found in the urine, it is very useful in doses of 1/6000 gr., every three hours (Brunton-Waugh). In lupus, cantharidine, injected hypodermically, cured completely incipient cases (Liebreich-Waugh). The larger uses of this drug are more fully described under Sodium cantharidate.

Dosage:—1/5000 grain every one or two hours, cautiously.

Capsicin

(Oleoresin from Capsicum Fastigiatum)

Physiological effects:—Is a stimulant to the solar plexus, rousing the vitality and awakening the vital resistance to the onslaught of disease. In small doses, it is followed by a sense of warmth in the stomach, the secretion of gastric juice is stimulated and all the digestive functions are aroused. In very large doses, capsicin produces vomiting and purging, pain in the stomach and bowels, acute gastritis and intoxication, with feebleness of the nervous powers.

Therapeutics:—When chilled from riding in a cold atmosphere, a bowl of hot capsicum tea will arouse vital resistance, send the blood equally through the vessels and prevent a threatened congestion, as well as any other stimulant and better than an alcoholic beverage.

In catarrh of the pharynx, the use of capsicin in solution, as a gargle, is of value in arousing the weakened tissues to a healthier action. It has also proved efficacious in relieving hoarseness.

In atonic dyspepsia and chronic catarrh, capsicin in small doses is a valuable stimulant and aids digestion while other measures are used in restoring strength.

In delirium tremens, capsicum, in doses of 20 to 60 grains, will do more to secure sleep and restore the nervous system to its balance than any of the direct hypnotics, singly or combined. Dr. Waugh said of it: "When a man is crazy for drink, insisting on repeated drams till drunk, hardly waiting till one is down till he is calling for another, give a teaspoonful of capsicum in an ounce of whisky. It will divert the mind to a different channel—mainly that of swallowing ice—and instantly stops the calls for alcohol. From this huge dose, we have never known harm; but, of course, it has only been called for in inebriates, whose stomachs were well prepared."

In the algid forms of malaria, congestive chills, a full dose of capsicin will do more than any other remedy to arouse reaction. It will require but half the dose of quinine, or less, to do the work when capsicin is added.

In passive diarrheas, and when a general stimulant is needed, capsicin, carefully given, is very beneficial.

Locally, capsicin has been recommended as a gargle in scarlet fever and in chronic ton-

sillitis; as an application to sluggish ulcers; for chronic ophthalmia, where the use of it is as apt as that of the abrus precatorius and certainly not so dangerous; for corneal ulcers, where the vitality of the tissues must be sustained at any cost, to abort acute tonsillitis, for the hoarseness of atony of the vocal apparatus; for relaxed uvula; chilblains; toothache; cold feet; in fact, in any case where it is advisable to stimulate the vitality or to increase the action of other drugs—and applying to local or internal use equally.

Dosage:—1/128 grain, one as indicated and repeated until effect gives better results than the larger dose of, say, 1/20 grain given at one time.

Carbenzol (Abbott)

A carefully rectified distillate from shale.

Physiological action:—A powerful antiseptic and bactericide.

Therapeutics:—Valuable in all parasitic dermatoses, eczema, scabies, acne, ringworm, barbers' itch (tenia circinata), and indolent leg ulcers. Also a valuable dressing for burns occasioned by scalding water.

Dosage:—Locally, as required.

Carbo vegetalis

Charcoal from salix frangilis.

Therapeutics:—Useful in hyperacidity and in some forms of indigestion with acid eructations, fetid breath, etc.

Dosage:—5 grains, one or two crushed in the mouth a short time after eating.

Cephaeline hydrochloride

Alkaloid from cephaleis ipecacuanha.

Physiological effects:—1/12 grain produces nausea, slight dizziness, salivation and retching, but not actual vomiting; at the same time, arterial pressure is somewhat diminished. A dose of 1/6 grain produces similar effects, followed in an hour by vomiting and increased peristalsis, a soft stool resulting.

Therapeutics:—But little used, as other remedies are more prompt in the indications.

Dosage:—1/24 grain with hot water, followed by copious draughts of warm water as soon as vomiting occurs.

Cerium oxalate

A white, odorless and tasteless salt; insoluble in water or alcohol.

Physiological effects:—Large doses cause dryness of the mouth; it causes heart depression, vomiting and purging, and congestion of the kidneys when administered intravenously. Acts as a sedative to the gastric mucosa.

Therapeutics:—Useful in irritable dyspepsia attended with gastrodynia, pyrosis and chronic vomiting. Vomiting of pregnancy, nausea resulting from uterine irritation, cough of phthisis, chronic bronchitis and morning cough are beneficially treated with this drug.

Dosage:—1/6 to 1 grain, the smaller dose every ten minutes to effect; in the nausea of pregnancy, 1 to 5 grains half an hour before meals.

Chelidonine sulphate

Salt of alkaloid from chelidonium majus.

Physiological effects:—Non-toxic; narcotic, resembling morphine, but less stimulating; slightly stimulating to the spinal cord. Heart muscle is depressed, pulse weak and slow, respiration stimulated.

Therapeutics:—Recommended in gastric ulcer, cancer and enteralgia. In infantile practice, chelidonine is preferred to opium because of its innocuity. It possesses calmative and hypnotic properties, but is less narcotic than are other alkaloids from plants of the same family.

Dosage:—1/64 grain every half hour until effect.

Chromium sulphate

While this salt has had considerable clinical experimentation with favorable results in the cases treated, but little has been learned of its physiological effects, except: that it has been demonstrated that a toxic dose in the human subject would be from 900 to 1500 grains. Some irritation of the digestive apparatus would be caused by smaller doses, but the daily maximum dose of 50 grains would be well within the limits of safety.

Therapeutics:—In prostatic hypertrophy, it has never failed to give relief, and in most cases has effected a cure.

Chromium sulphate has proved successful in mammary cirrhosis, castration, menopause, functional impotency in men, chronic alcoholism, nervous vomiting and that of pregnancy, neurasthenia, locomotor ataxia, exophthalmic goiter and in the migraines. In these several diseases, it is worthy of the consideration of every practitioner and the writer cannot too strongly recommend it in locomotor ataxia and in prostatic hypertrophy; while, in uterine fibroids, in combination with calcium iodized (Calcidin) its action is most pronounced in promoting the absorption of the growth.

Dosage:—4 grains. It is well to commence treatment with a dose of 2 grains, increasing, according to tolerance, up to 8 grains after each meal and at bedtime. Should constipation supervene, a mild cathartic should be added and, if there is gastric irritation, menthol in small doses may be used as a

corrective.

Sharp elimination especially with the salines is an absolute necessity.

[*To be Continued.*]

DOCTOR BRYCE'S TALK

Advice Regarding Abortion

I am induced to take up this delicate subject through a question propounded seriously to me by a young physician whose mind had not been fully satisfied as to his duty under a most distressing case. He asked, "What Advice Shall We Give to The Woman Seeking Us for The Production of an Abortion?" Like almost every physician would say, I told him that there was but one answer to give every woman who sought the services of a physician for this purpose, and that was: Under no conditions to entertain the idea even for a single moment. I have never observed any other rule but this; and, yet, I have met a few occasional physicians who allowed their sympathy to get the best of their judgment in doing an act condemned by both the moral and legal codes. I have no harsh criticism to make of such unfortunate men except to feel sorry for them, and advise them in future to cut short all interviews before they become sympathetic.

Now, for the sake of others who may not be fully convinced as to the importance of firmly and promptly refusing to listen to any appeal from these unfortunate women, I will present a few cases that may show the danger of being mixed up with them in any way whatever. Many years ago, I knew a physician of unusual ability and splendid attainments who had the reputation of being an abortionist. I knew him well and was very fond of him, and these reports about him worried me to such an extent that I actually asked him to tell me as a friend if there was any foundation for them. To my astonishment, he said: "Doctor, I have no conscientious scruples against producing an abortion for any unmarried girl who has been deceived and taken advantage of by a man she loved and expected to marry, provided she applies to me before the child is viable."

"Wouldn't you produce an abortion to save life?" he asked me.

"Certainly, where it is necessary to save the life of the mother."

"Don't you think that the disgrace and loss of caste and the finger of scorn are worse than death for a mother and for the child who lives to keep her shame alive?" he asked.

"I am not your judge, Doctor," I told him. "But I would never do it again."

Three years after this conversation, I was sent for to see this physician and found him sick and under arrest for producing criminal abortion, with his house guarded until he could appear in court. After many continuances, the case was finally set for trial; but, fortunately, the woman's husband, knowing that I was a friend of the accused physician, approached me with a proposition to buy off his wife's testimony for a sufficient sum of money. I told him that I would have a conference with the doctor, and asked him to meet me with his wife at my office by ten o'clock the next morning. He appeared on time and stated that his wife's testimony would send the accused to the pen, and that, unless the doctor "came across" with one thousand dollars, he would see that she furnished the evidence.

"How much did you pay the doctor for aborting your wife?"

"He didn't charge her anything."

"Why did he do it?"

"Because she told him, if she brought another child in the world, she could not take care of it, and she would just be bringing suffering upon them all."

"This looks like blackmail to me," I told him.

"You can't prove it," he said.

I just turned back my portieres and let him see, sitting within eight feet of him, Dr. S., a friend, and two other men, who said they would recognize him and his wife in court and would swear to every word he had uttered.

I understand that he and his wife left the state that night, and, when the case was called in court, these witnesses were not to be found and the case was dropped.

The doctor did not live very long after this trying ordeal. I attended him in his last illness and was asked by the family if I thought I could get a few medical men to be his pallbearers. It was a delicate question, but I never deserted a friend because he sinned or fell through human weakness. I asked certain physicians to join me in giving him proper burial. They came and solemnly deposited the casket in the grave, and, while I stood there and heard the earth being thrown upon the coffin, I thought of Christ's words when he asked, "Woman, where are those thine accusers? Hath no man condemned thee?" She said, "No man, Lord," and Jesus said

unto her, "Neither do I condemn thee: Go and sin no more." And then I thought of the many opportunities my friend had utilized to save those that would have been lost and to give them a chance to "go and sin no more."

To show the far reaching blight of this kind of criminal practice: Just because I was friendly to this erring brother, there were persons who thought that my friendship for this physician meant that I approved of his practices, and for more than a year, occasionally, parties unknown to me applied to me for the performance of this operation, with the belief that I had my price.

So I say as I have always said: There is no middle ground, no half-way refusal, no temporizing or considering the question, but a quick clear cut No. Thus save yourself from trouble, danger, and loss of respect of those who would offer you such a compromising proposal.

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Long years ago, there came to my office a mere child in plain attire and with trembling lips told me her trouble. She was the youngest of three sisters and the child of poor country people, whose good name was all they had. She pleaded with me to save her from the consequences of her misstep and the sorrow and disgrace she would bring upon her parents and sisters. She had been over-persuaded by a man she loved and who had promised to marry her. When he found she was in trouble, he fled to parts unknown. She was game. When I told her that I could do nothing for her; but that she should go back to her parents and tell them all and let things take their course, she said: "I love my parents and sisters too well to ever disgrace them —please promise me to keep my secret whatever may happen." Bidding me goodbye, she left my office. Two months afterwards, she was found dead in a Negro hut in Chesterfield county; not the result of any criminal attempt, however, but from grief and despair —a willing sacrifice of her own life for the sake of those she loved.

I felt about this case and all others like it, like old Dr. MacGill did when he asked me to do a craniotomy for him. The dear old soul was a devout Catholic and, after wearing himself out trying to deliver an impossible head, he said to me, "Dr. Bryce, my religion forbids my taking the life of that child even to save its mother's life, but I would certainly be glad to see *you* do it."

My observation has been that most physicians feel that they have done their duty toward these unfortunates when they persuade them to "let nature take its course." But, in nearly all of these cases, Nature does not take its course, and these poor little unwanted ones are worse off than if they had never been born, for they are denied the pabulum Nature provides for them and are given away or placed in the hands of others "to be cared for." Most of these deserted children are literally starved to death or die of some more acute condition, due to dietetic errors, within six months from birth. Indeed, many of them do not live a month.

If it is a physician's duty to plead for the life of the unborn child, as it certainly is, then it is even a greater duty to mother and child to give them both a chance to make good in this life.

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For the benefit of some impecunious young doctor, to whom money may be a temptation, I shall relate an occurrence in my own experience when I was a young man and under great financial strain: I was making desperate efforts to keep soul and body together and had actually gotten so much behind in the rent of my office, that my landlord had threatened to levy upon my effects and put me out. Owing to the sudden failure of a bank, I lost the three or four hundred dollars that I had saved for emergencies, and I was down and out good and hard. While sitting one morning contemplating my chances for holding the fort much longer, I noticed a handsome carriage with a pair of beautiful horses driven by a liveried coachman draw up before my office. Two ladies got out and, walking leisurely to my door, rang the bell. One was a middle-aged woman and the other was apparently a daughter. After inquiring if I was the doctor, the elderly lady said they desired to consult me privately. I ushered them into my consulting room and informed her that we were entirely alone. I could see from their costly apparel and unobtrusive jewelry, along with their well chosen language, that they were educated and wealthy people, but was surprised that she had omitted the courtesy of introducing herself and daughter. After seating themselves, she, without saying anything, deliberately drew out and deposited on my table five one-hundred dollar bills and, looking me squarely in the eyes said, in a stern, hard, cool and calculating voice: "My daughter is in trouble—I want you to relieve her." "This is simply a retaining fee, you can send your bill for any fee you like when it

is through." Continuing, she said: "I am in position, financially and influentially to protect you fully from any prosecution or punishment should any unforseen accident occur, and I will put you on your feet and make you a success."

I was so amazed at this cold-blooded proposition that, for a minute or two, I made no reply to her. A man can think a deal in two minutes. He can run over his whole past life in that time, and I glimpsed the picture that had been drawn for my future. I handed her back her money and told her that there was a better way out of the trouble than trying to induce struggling young doctors to commit unlawful acts. I advised her to take her daughter to some large city where they could live unknown, and carry her child to term, and when it was born to spare no expense to keep it alive and give it a chance in life. As she arose to leave, I noticed tears in her eyes, and placing her hands on my shoulders, she said, "My son, you have been raised by a good mother. I shall do as you say, and may God ever deliver us all from temptation." I surely needed that fee, but I am glad to say its offer was no temptation to me.

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The medical profession is confronted with no more serious problem than that of the unwanted child and its protection after birth. I recall a case that shows to what extent of neglect and crime women will go to hide their shame. I had been practicing medicine for five or six years when, one evening, an elderly man and a younger one asked me to listen to a proposition from them: They informed me that there was a little baby in the house of a colored woman, giving me name and street number, that they desired me to see and attend as long as it was sick. I understood from the younger man that he had married the daughter of the gentleman who came with him, and that the little sick one was his child. They had been indiscreet and it was born too soon after their marriage. They concealed its birth as well as they could and sent it to this Negro woman to be cared for. The young wife pretended a few days' indisposition and apparently went on to full term to tally with the usual expectations. The plan was, to go through a pretended confinement at the right time and for me to attend her. An old midwife was to supply a newborn baby from an expected source.

I found her sick baby dying from marasmus while she could have easily furnished it her life-sustaining milk. In due time, unwilling mother No. 2 gave birth and the midwife brought the child to mother No. 1, who found it convenient to be confined at midnight, and while her own was dying of starvation in a Negro's hut and did die within a few weeks thereafter. This foster-child lived and grew to be a beautiful young woman and married a splendid young man, and I trust she never learned the circumstances surrounding her birth.

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It is an awful thought that a young woman must go through life with the brand of unchastity upon her brow and be spurned as unclean; but, to alter this decree, would shake the very foundations of society and moral safety. It is likewise a terrible hardship for a child to be started on its career in life without a name. Still, what can be done? Let the moralists, philanthropists and Christian people find some way of saving these unfortunates.

C. A. Bryce.

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PITUITARY SUBSTANCE ANTAGONISTIC TO ANESTHETIC INTOXICATION

A postgraduate course in experimental pharmacology was held in the interest of the National Anesthesia Research Society, at the University of Cincinnati College of Medicine, for one week, beginning January 8, 1923. The society, which is one of national scope, is primarily interested in the practical application

of general and local anesthesia to the relief of human suffering. The course was made possible through the leadership of Dr. Dennis E. Jackson, Professor of Pharmacology of the College of Medicine, who has devoted a great amount of time to this important phase

of medicine and who was requested to give a course of instruction to members of the society, following the reading of a paper before a joint meeting of the National Anesthesia Research Society, the Ohio Dental Society and the New York Society of Anesthesia, held in Columbus, last October.

The course consisted of lectures, demonstrations and experimental investigations, and so enthusiastic were the physicians in attendance that daily conferences were held every evening at the Hotel Gibson for a discussion following the day's program. Doctor Jackson personally delivered two lectures, the meeting also being addressed by Drs. A. P. Mathews, Martin H. Fischer, Alfred Friedlander, J. W. Grieve, Mr. J. V. Lawrence and Mr. John A. Higgins.

Mr. John A. Higgins, of The Abbott Laboratories, gave a talk on the evening of the first daily conference. Special demonstrations relative to efficiency, toxicity, and methods of combating toxic doses of the local anesthetics were made by him.

An important factor which Mr. Higgins demonstrated was the use of pituitary substance in combating ultralethal doses of the new "Butyn" local anesthetic.* Small amounts of pituitary (Abbott's pituitary was used in the demonstrations) given intravenously showed a very marked antagonistic reaction. Another factor brought out by Mr. Higgins was that pituitary of over two and one-half years of age was just as effective as fresh pituitary solutions in combating ultralethal doses of "Butyn." Other points of interest in the use of "Butyn" were also brought out by Mr. Higgins, who was solicited to show the entire demonstration of "Butyn" again during the Chicago Congress, to be held next fall.

Some of the out-of-town physicians in attendance and some of those whose pictures are herewith shown, are Drs. B. H. Harms, Omaha, Nebraska; W. I. Jones, Columbus, Ohio; E. I. McKesson, Toledo, Ohio; R. A. Rice, Columbus, Ohio; Frances Haines, Chicago, Illinois; F. H. McMechan, Avon Lake, Ohio; A. E. Peebles, Wilmington, Ohio; D. O. Barrett, El Paso, Texas; L. Shuey, Toledo, Ohio; W. N. Thompson, Sullivan, Indiana; B. Morgan, Chicago Illinois; J. B. Barker, Piqua, Ohio; M. Taylor, Danville, Illinois; A. W. Carrill, Norwood, Ohio; W. J. Walker, Greensburg, Pennsylvania; T. T. Church, Salem, Ohio; Claudia Potter, Temple, Texas; L. R. Allen, Colorado Springs, Colorado; C. C. McLean, Dayton, Ohio.

Dr. F. H. McMechan is chairman of the National Anesthesia Research Society; Dr. E. I. McKesson, president of the society. Other prominent members of the society are Dr. Yandell Henderson, Professor of Physiology, Yale; Dr. Theodore D. Casto, University of Pennsylvania Dental School; Dr. F. C. Mann, Professor of Experimental Surgery, Mayo Clinic, etc.

INSULIN TREATMENT OF DIABETES

The recent researches, which were initiated by Doctor Banting, of Toronto, and continued by his group of workers, bid fair to constitute one of the great discoveries in medicine.

About two years ago, Doctor Banting conceived the idea that, if the pathologic axiom was true that ligature of the pancreatic duct produces atrophy of the acinar tissue of the pancreas, while the Islands of Langerhans remain intact, this would produce a hormone

* A more detailed account on the use of pituitary substance as an antagonistic agent for toxic local anesthetic reaction is being compiled for a separate publication.

which, on being introduced into the system, would bring about relief of the diabetic symptoms. This, of course, providing the correctness of the theory that the pancreas, and particularly the Islands of Langerhans, were involved and at fault in producing an insufficient secretion to metabolize the carbohydrate intake into the system. His first experiments were made on dogs. He ligated the pancreatic duct of one and waited about ten weeks for the acinar tissue to atrophy, i. e., that portion of the gland which produces trypsin, a very poisonous and destructive agent which, if included in the material, would be exceedingly objectionable.

After the removal of the gland in the atrophied state, the next problem was to produce an extract of the insular tissue, which would be free from protein; the presence of protein (as is well known) being objectionable because of its property of producing anaphylactic reactions which might be very dangerous and even fatal.

It was found, after considerable experimentation, that alcohol, in percentages of up to 80 percent, would dissolve the active principle of the islets and that alcohol in percentages of between 80 and 90 precipitated the protein. This produced a substance that would be, in a measure, protein-free.

Banting next performed a total pancreatectomy on a dog, and then used the material (which he named **Insulin**) subcutaneously. This prolonged the life of the totally depancreatized dog for seventy days, at which time Banting was obliged to kill the dog because of the lack of insulin to continue the subcutaneous injection. This, in itself, was a remarkable experiment and immediately proved that insulin was a very valuable substance in serving to prolong life of this animal. Blood analysis showed that the blood sugar of this animal was reduced to normal, within a few hours after the injection, and the urine was rendered sugar free.

It might be well to note here that the life of a depancreatized dog, without the subcutaneous injection of insulin, is about eleven days, at the most.

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The next step after the success of experiments on animals was, naturally, to use it on cases of diabetes in humans. It was found that there was no effect after administration by mouth or rectum. Intravenously, it acted much more quickly than subcutaneously. The results in humans were exactly the same as in dogs; viz, a prompt fall in the blood sugar, the elimination of the glucose in the urine, and the freeing of the system of the acetone products.

The gravest cases that have been treated are those with almost a total diabetes in a comatose state. They were treated by such skilled physicians as Dr. Frederick Allen, at his institute at Morristown, Dr. Foster of Cornell University, and by other famous men in this field of medicine. Patients whose illness was considered hopeless and who were expected to surely die were temporarily rendered sugar and acetone free, both in the blood and the urine as well.

As will be readily perceived, insulin is a very potent agent, and its dosage must be accurately determined in every case.

A new pathologic condition has been discovered and forcibly brought to the attention of the observers who use this extract, namely hypoglycemia. This condition of insufficient blood sugar is caused by an overdose of insulin. It was first observed by Banting in rabbits, while trying to determine the unit of dosage. He observed that, after an overdose, the animals suffered from the deficiency of blood sugar, first becoming hungry, then supersensitive, and finally developing mild convulsions and dying in a coma.

It was found that intravenous injections of glucose solutions relieved this condition and restored the animal to a normal state, proving that the condition was definitely one of hypoglycemia. A number of cases of hypoglycemia have occurred in human beings, after the use of insulin, and the symptoms were observed up to the state of coma. None of the patients died, because of the prompt use of glucose, intravenously, and of adrenalin, subcutaneously.

It is well to impress on all who contemplate using insulin that its use is not without danger, and that careless practice may produce dire results.

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The next problem that presented itself was the standardization of dose, and, while the result is not by any means absolute, it was determined by Banting that it was the best that could be found at this stage of development. Accordingly, he determined that an amount sufficient to kill a four-kilogram rabbit in four hours was the unit of dosage. At first, there was only one unit of insulin per Cc. This has been increased up to four units per Cc. of dose.

Since its manufacture after the above procedure would make the cost of its production

practically prohibitive from the standpoint of the average income, and because of the fact that one unit only could be obtained per pancreas, the Toronto group began a series of experimentations to find cheaper methods of production. It was known that fetal calves at about the fourth month of gestation had no development of the acinar tissue of their pancreas, and the insular tissue was well developed. The extract was made from these, and this proved to be as suitable as the extract of the atrophied pancreatic gland of the dog. The abbatoirs could supply a still greater quantity of these, and they were much cheaper than dogs at $3.00, and so an increased supply became available. This was still a very limited source of supply. The demand was great, and so the search was on for more suitable methods of production. At this date, it has been found that a 50% solution of alcohol and 2% hydrochloric acid will dissolve the insular material of the beef's pancreas and destroy the acinar material; consequently, a greatly increased supply of the material will shortly be available at a much decreased cost.

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The dose being the unit, the next question which naturally arises is, how much will any given case need? This matter has not been settled to date. The proper dosage is, enough units, given subcutaneously in periods of from one to four daily, that will render the blood sugar normal, remove the acetone products, and free the urine from glucose. This dose varies very greatly in different cases. From 1 to 100 or more units may be necessary daily to maintain an ideal, i. e., the normal blood chemistry. Its action is best (at this time) observed by being used subcutaneously. After injection, the action is rapid, reaching the high point after 4 to 6 hours and gradually declining for 4 to 6 hours, after which its effects are entirely exhausted.

This comparatively quick rate of absorption is one of the drawbacks in the treatment. The injection must be repeated every 6 to 24 hours for continuous effect, and is not by any means a permanent cure, as will be readily seen.

There are various factors which enter into a consideration of proper dosage. The amount of carbohydrate intake influences the amount of units to be used. Obviously, if there is tolerance of 50 Grams C.H. and an intake of 100 Grams, it would require more insulin to metabolize the extra carbohydrate than it would if less were ingested.

The presence of infection which depresses insular activity would naturally be a factor in increasing the dosage. The drug has now been used by three very capable specialists whose work I have had the good fortune to observe, and, when given in proper dosage, its action is little short of magical in the most severe cases, bringing all but the most moribund cases of coma to a safe state. A number of cases I have seen were in children who have had a severe diabetes of two and three years' duration; the results produced in these cases were marvelous.

By no means may the strict adherence to diet, in proper percentage of carbohydrates, protein and fats be neglected in the treatment of diabetes. This disease must be understood to be caused by a hormone deficiency if the patient is to receive the fullest benefit from consultation and advice. For years to come, the disease will not be better controlled except by the careful analysis of tolerance, blood sugar percentage, respiratory quotient and precise uranalysis, when properly interpreted to make possible correct conclusion, as to the capacity of the pancreatic function; from this laboratory information, a proper diet, both as to quality and quantity, must be prescribed for the patient.

Insulin has a real place in medicine, however, not only in cases neglected or improperly treated that go to the stage of acidosis and coma, but in that class of cases in which the carbohydrate and protein tolerance is so low that the number of calories must be reduced to a point that means chronic starvation. In these cases, with the use of insulin, the tolerance can be increased both as to quantity and quality, and these victims of chronic undernourishment can be brought to a point where the diet is sufficient in amount and quality to bring them to a state of nutrition compatible with comfort and allow them to perform duties which, without its use, would be impossible of accomplishment. In the discouraged and disgusted patient, who breaks all rules of treatment and goes on a carbohydrated jag (*sic!* a chance for something of pleasure in these Volstead days), a dose or two of insulin will remove quickly all ill effects of the debouch and rest a fatigued pancreas. In all probability, no harm will follow if this method of treatment is resorted to every time. Insulin will give all the mild or moderate diabetics a chance to eat their Christmas or Thanksgiving dinner from soup to nuts, and enjoy it without throwing them into an acidosis or even affecting their system. In surgical cases, the diabetic has a

better chance because insulin relieves the acidosis, etc., and practically settles this vexing problem.

This treatment definitely determines that the pancreas is the seat of the lesion which produces diabetes, and clears up the question as to the pathology.

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Too great credit can not be given to Doctor Banting. Trained as a surgeon, he brought a wonderfully keen, unprejudiced mind to action and followed up a remarkable idea with all the courage and concentration of a great scientist, evolving it successfully, with two years of constant work, into a practical, usable method for the treatment of this very prevalent condition. Like the greatest of all great medical scientists, and to the glory of this great profession of ours, he has given his discovery to the world at large without demanding a single cent of tribute in the shape of royalty.

For this noble work and gift to humanity, this Toronto physician's name will be placed among the great names in medicine, and humanity will revere, honor and respect his devotion to science.

J. B. GARLICK.

Schenectady, N. Y.

A GOOD OPENING IN COLORADO

An old friend of mine in Colorado recently died, leaving a splendid practice in one of the best towns in the state. Very little money will be required to step into this. If any reader is interested in this opening, and will write me personally, I shall be glad to give him further information.

ALFRED S. BURDICK

4757 Ravenswood Ave.,
Chicago, Illinois.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Junior Pathological Technician

The receipt of applications will close on April 24. The examination is to fill a vacancy in the Army Medical Museum, at Washington, D. C., at an entrance salary of $1,800 a year, plus the increase of $20 a month granted by Congress.

The duties will consist of the dissection, preparation, preservation, description, and classification of pathological material and arrangement of this material for exhibit; also independent research work along these lines of study.

Competitors will not be required to report for examination at any place, but will be rated on the subjects of (1) education, training, and experience, and (2) pathological specimen, to be submitted with application.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or secretary of the board of U. S. civil service examiners at the post office or customhouse in any city.

The U. S. Civil Service Commission announces open competitive examinations for:

Assistant in Child Hygiene, $1600 to $2400 a year.

Specialist in Child Hygiene, $2400 to $3600 a year.

Specialist in Child Hygiene (Psychiatry), $2400 to $3600 a year.

The receipt of applications for these positions will close on April 24. The examinations are to fill vacancies in the Children's Bureau, Department of Labor.

The increase of $20 a month granted by Congress is added to all salaries not exceeding $2500 a year.

The Commission also calls attention to the opportunities for appointment offered to persons who are qualified and who desire to enter the Government service at the new United States Veterans' Bureau Hospital for colored veterans, shortly to be opened at Tuskegee, Alabama, and erected on ground donated for the purpose by Tuskegee Normal and Industrial Institute.

Graduate nurses; salaries $1680 to $2500 a year. (Chief, Assistant Chief, Head and Staff positions.)

Reconstruction aides; salaries $1710 to $2000 a year. (In Occupational therapy and Physiotherapy.)

Reconstruction assistants; salaries $1400 to $1600 a year. (In Occupational therapy and Physiotherapy.)

Dietitians; salaries $1680 to $2500 a year. (Chief and Staff positions.)

The following-named positions in the hospital will be filled from registers established by the District Secretary, and persons who wish to apply for them should send for full information and application blanks, addressing: The Secretary, Fifth U. S. Civil Service District, Post Office, Atlanta, Ga.

Physicians. (General medicine and surgery, salaries up to $3250 a year. Specialists, up to $5500 a year.)

Dentists; salaries $2400 to $3600 a year.

Laboratorians; salaries $1680 to $2000 a year. (In Roentgenology, Bacteriology and Dentistry.)

Pharmacists; salaries $1680 to $2000 a year.

Applications for positions in the Children's Bureau, Department of Labor, must be received prior to April 24. Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or secretary of the board of U. S. civil service examiners at the post office or custom house in any city.

The U. S. Civil Service Commission announces an open competitive examination for graduate nurse, and graduate nurse (follow-up), for filling vacancies in the United States Veterans' Bureau and in the Indian and Public Health Service.

Salary.—*Indian Service.*—The usual entrance salary for this position in the Indian Service is $840 a year, with laundry of uniform, furnished quarters, heat and light. Meals are furnished at cost. Appointees whose services are satisfactory may also be allowed the increase granted by Congress of $20 a month.

As great difficulty has been had in securing sufficient eligibles for the Indian Service, qualified persons are urged to apply for that service.

Veterans' Bureau and Public Health Service.—In the nursing service of the Veterans' Bureau and U. S. Public Health Service, the rates of pay are as given below. For the Public Health Service, in addition to the salaries stated, appointees whose services are satisfactory may also be allowed the increase granted by Congress of $20 a month. For the Veterans' Bureau appointees will not be allowed quarters, subsistence, or laundry, or the congressional bonus. Appointments are usually made at the lower grades and according to assignment and experience disclosed by the examination; the hither grades are usually filled by promotion.

Hospital Service—	Veterans' Bureau	U. S. Public Health Service
Chief Nurse	$2,250 to $2,500 a year	$1,344 a year
Assistant Chief Nurse	2,000 to 2,250 a year	960 a year
Head Nurse	1,800 to 2,000 a year	780 a year
Nurse	1,680 to 1,800 a year	720 a year

Nurses assigned to patients having tuberculosis or neuropsychiatric conditions are allowed increased compensation at the rate of $60 a year in the Public Health Service only.

Follow-up work in district or subdistrict managers' offices, Veterans' Bureau, to be selected from those passing as graduate nurses (follow-up):

Chief Nurse, $2,000 a year.

Head Nurse, $1,800 a year.

Staff Nurse, $1,710 a year.

Nurses having special experience in psychiatry, $1,800 to $2,400 a year. These employes do not receive quarters, subsistence, laundry, or the congressional bonus.

Applications.—Applicants should at once apply for Forms 1312 and 2380, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Post Office, Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle Wash.; San Francisco, Calif.; Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, including the medical certificate, but excluding both vouchers and the county officer's certificate, and must be filed with the Civil Service Commission, Washington, D. C., without delay.

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

The United States Civil Service Commission announces the following open competitive examination:

Junior Medical Officer and Assistant Medical Officer. (Roentgenology; Psychiatry.)

Medical Officer. (Tuberculosis; Neuropsychiatry; Internal Medicine and Diagnosis; Physiotherapy.)

Applications will be rated as received until the close of business on July 3.

The examination are to fill positions in the Indian Service, the Coast and Geodetic Survey, the Public Health Service, and the Veterans' Bureau.

Competitors will not be required to report

for examination at any place, but will be rated on the subjects of education and training, rated at 30%, and experience, rated at 70%.

Definite specifications as to education and experience requirements, and salaries and allowances, are given in the printed announcement, which will be furnished upon request.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or courthouse in any city.

A CASE OF DERMATITIS GESTATIONIS

Mrs. A. B., age 34, V-para, came under my observation in June, 1920, at her fourth month of pregnancy. At that time, she had a small red papule in the bridge of her nose, a little below the lids of the eyes, about the size of a small pea, surrounded by an inflammatory area about as large as a ten-cent piece. In a short time, the center of the papule broke down and the ulceration spread and assumed a deep, punched-out appearance. Treatment with antiseptic and astringent ointments and lotions had no effect. At time of full-term labor, patient's nose was fully twice its normal size and covered with many cheesy looking crusts, in addition to the large ulcer. Inside of three weeks after delivery, the condition had entirely cleared up; and that without any treatment. The patient showed me, when coming under my care, a large scar on her left forearm which, she said, resulted from a similar sore during her previous pregnancy.

This woman became pregnant again in 1921 and, at the fourth month, developed another sore, this time, on the upper lip, which went through exactly the same course, but was somewhat slower in healing after delivery of the child.

Dr. W. R. Jaffrey of this city, a dermatologist, saw the patient with me during her last experience, and prescribed for her, but with no improvement. The general health of this woman is excellent. Wassermann negative. No albumin or other abnormality in the urine. She is the mother of six healthy children, and, until six weeks ago, had had no miscarriages. She recently experienced rather a stormy time with a self-induced abortion at the third month. One must be lenient towards her, this time, for heading off the condition, as her face is badly scarred. If the editor or readers of CLINICAL MEDICINE can suggest a treatment that would be of benefit in this case I shall read it with much interest.

ISAAC E. CRACK.

Hamilton, Ontario.

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As this case was, manifestly, one of endocrine insufficiency, we asked Dr. Maximilian Kern, of Chicago, to comment on it; for the reason that he has investigated problems of this kind for some time. His comment is as follows:

This case presents so many angles that it would be dangerous to attempt a definite diagnosis. It presents many opportunities for theorizing, and one must not make a dermatological diagnosis on the mere knowledge gained from a history. In the absence of more information about the case, one would feel justified, to my mind, to consider it as one of acne rosacea of a somewhat unusual type. While the ordinary acne rosacea is not expected to run such a stormy course as the lesions described in this instance, yet it must be reasonable to expect an accentuation of the condition, in view of the fact that the powers of detoxication of a pregnant woman are naturally greatly diminished. In view of the great demand for colloid substance, which is made on the thyroid gland during pregnancy, we are all aware of the fact that the reserve amount of iodine in the gland is greatly depleted, and, therefore, one of the main functions of the thyroid (namely, detoxication) is very much impaired. In consequence, any pathologic condition of the skin will meet very little resistance on the part of the body, and will, therefore, run a stormy course. After labor is completed, metabolism "rights" itself and the toxicity of the body diminishes; therefore, an almost spontaneous cure is to be expected.

In a recent article in the *Journal of Obstetrics and Gynecology*, Fitzpatrick described an unusual case of Addison's Disease during pregnancy, which was practically devoid of the typical pigmentation of the skin, but presented itself rather in a form of herpes, which, however, assumed all the characteristics of the adrenal disease, a few days before labor, and terminated several weeks after labor.

There is no doubt about the inter-relation between the adrenals and the thyroid. One may be compensatory in its action to the other and, during pregnancy, the adrenals being impaired, one should always suspect, in the condition of the skin, some evil work of the adrenal glands. Even the ordinary chloasma, which is usually found in pregnancy, is considered due to the abnormal condition of the adrenals, and this,

coupled with a localized infection of any part of the skin, would likely produce symptoms similar to those described in this case.

Long before we were acquainted with the value of organotherapy, conditions of herpes, and even acne, have been treated by small doses of thyroid extract. In this case, it would naturally be advisable to watch the diet, institute gastrointestinal elimination and administer thyroid extract, preferably in conjunction with ovarian extract, not omitting, of course, local applications, which the dermatologist in this case has, no doubt, used.

MAXIMILIAN KERN.

Chicago, Ill.

TRIALS OF THE COUNTRY PRACTITIONER

I am practicing in a small country town in the southwestern part of Illinois, between the Mississippi and Illinois rivers. There are no hard roads in this part of the country and, from November to May, all my work has to be done on horseback or in a two-wheeled cart, as not even a four-wheeled buggy is able to navigate these mudholes. Indeed, many times I had to tie my mare to a tree and wade the rest of the way, as not even a horse is able to cross these creeks without floundering in the mud and water.

Several weeks ago, I was called out, in a pitch-dark, rainy night, to attend a woodchopper family living in the swamps of the Illinois river, about six miles from the office. I hitched up Topsy and, with only upsetting twice on the road, I arrived at the hut in due time. Here, I found that I had been called to a confinement case. After cleaning some of the mud off myself, I bathed my hands and arms in 1:1000 solution of bichloride. I started to examine the woman and found a transverse presentation, the right arm of the child sticking out of the vagina. The woman was nauseated and almost unconscious. Her vomit smelled like tobacco and I asked the husband for the reason. He said, "Well, a chew of tobacco always helps me, so I gave her a chew of tobacco. She chewed for awhile, but she started vomiting a short time afterwards." I do not know if he expected that his chew tobacco would cause the fetus to do a somersault *in utero*; anyhow, he succeeded in nauseating his wife very thoroughly.

Well, there I was in a leaky, dilapidated woodchopper's hut, over ten miles from the nearest physician over almost impassable roads. The first thing I did was to give the mother a full dose of hyoscine-morphine-cactoid; afterward, I scrubbed again my hands and arms with 1:1000 solution of bichloride, and pushed back the arm into the uterus, made a version by rotation, finally delivered the foot an, in that way, the child, without any further trouble. A few days ago, I had occasion to pass this hut again and I found the mother singing and doing the family washing; the baby was comfortably asleep in a soap box doing duty for a cradle.

I know that my professional brothers of the city might have handled this case more scientifically; but, if you stop and consider the circumstances under which I was compelled to work, it is clear that I did the best I could in this particular case. Anyhow, the work of a country practitioner might be theoretically the same as the practice in the city; practically, his work is a great deal more difficult and his fees are very much smaller.

ALFRED E. STAPS

Chambersburg, Ill.

[We wonder why so many country doctors are so desperately modest in their self-deprecation and in comparing their methods and their results with those of city physicians. Doctor Staps could do but one thing: push back the presenting arm and rotate the fetus. The correctness of his procedure is shown by his success. He did remarkably well, better than many city physicians would have done.

Good practice means not to do ideal work, such as is possible under ideal circumstances; but to accomplish the best that can be attained under the circumstances in which the physician finds himself and with the means that he has available. That being the case, we back the country doctor against a good many others for resourcefulness and all-around efficiency in difficult situations. Let the country doctor take heart. He is not a barnacle on the ship of Medicine, impeding its progress; he is an essential factor in the medical world, one of its most important props. He, like the general practitioner everywhere, is slowly but surely coming into his own; he has found his champions, his defenders, his supporters. However, with renewed and increasing appreciation comes increased responsibility for good work, for conscientious effort, for constant and steadfast development and progress.—ED.]

What Others are Doing

PREPARING AUTOGENOUS BACTERINS

Swabs from the posterior nares or from the pharynx that are made by the physician, in cases in which he desires a bacteriological diagnosis, or from which he wishes to have an autogenous bacterin prepared, often give unsatisfactory results. This happens so frequently that some physicians have come to deny that the method possesses any advantages.

However, there is a definite reason for failure either to secure a complete bacteriological diagnosis or an efficient bacterin. The reasons for this failure are well described in an article on vaccine therapy in childhood [*Nutrit. & Ped.*, (London), 1923, First Quarter]. This article deals especially with recurrent catarrhs or "colds" and other ailments in which a stimulation of immunity is requisite for clinical cure. "The most successful way of dealing with this class of cases has been, to take a swab of the posterior nares, using all aseptic precautions, transfer the moist secretion immediately to warmed culture tubes and insert into the incubator, so that the bacteria never become dry or cold. This is of the greatest importance and a fact only realized by a few; i. e., that the patient must actually go and be swabbed at the laboratory in proximity to the working incubator. Failure to take this precaution probably explains the reason why success does not always follow when the swab is sent by post to distant laboratories or elsewhere, where it arrives cold and dry. By then, all the delicate and, often, the most virulent bacteria, including the ultramicroscopic ones, are dead, and only the sturdy and common ones, such as the staphylococci and a few other bacilli, which for the case in hand may be useless, survive the journey."

We feel certain that the explanation given in the foregoing quotation is correct for a great many cases. When proper precautions are taken to prevent drying up of the swab, all microorganisms present can be cultured and isolated in the laboratory and, in consequence, a complete plurivalent bacterin can be prepared from which effective clinical results may justly be expected. The highly scientific idea that bacterins should contain only single organisms and that plurivalent bacterins belong in the class of shot-guns has long since been disproved conclusively. We suggest that, where such swabs are sent to the laboratory from a distance, a sufficient quantity of sterile Ringer's solution be incorporated in the absorbent cotton and that the container be sealed air-tight in order to prevent evaporation.

WALKING AS AN ART

From the many advertised "courses" of exercise one gains the impression that the long-sought cure is at hand. Now some of these "courses" may have something of value in them; in fact, asserts the April issue of *Hygeia*, a few of them may almost be worth the price that is charged for them. None, however, will bring about any better general health than can be obtained by the good old-fashioned walk of our grandfathers. It has often been said that, if fresh air were a commercial commodity and all that is used had to be purchased, it would be more highly prized and more lavishly employed. It is equally true that, if walking were part of a system of exercises that had to be learned through purchased "courses," it would be more popular. A good free, swinging gait; clothing adapted to the weather; shoes that do not cramp the feet and are not too light; a mental attitude that makes you enjoy a walk instead of looking on it as a task to be done—and you have an exercise that will make you more fit than any purchased "course," and a tonic that will put to shame all tonics that were ever put up in bottles. Try it.

This reminds us of a story that we read, many, many years ago. It was a very famous physician who lived—almost anywhere will do. The story goes that this doctor's fame had traveled afar and near, and that he was successful beyond the ordinary in dealing with difficult problems.

One fine morning, a carriage, drawn by four magnificent horses, drew up before his door, having been sent by a man living in a town, several days' journey away. It may be remarked, by the way, that this was said to have happened long before the days of railroads. This man, who was almost indecently rich, sent word to the doctor that he should forthwith come and attend him.

The doctor had heard something of the rich man's illness and of his peculiarities. He sent him word that he, the patient, harbored a very dangerous animal in his interior which would be seriously disturbed by the ordinary methods of travel; that he, the doctor, could not leave his practice but that he would be willing to see the patient if the latter would come for consultation and treatment. However, he must by no means travel in a coach or in any other conveyance. It was absolutely necessary to walk the entire distance, lest the dangerous animal in him be roused to vicious activity and kill him.

The patient, of course, fretted and fumed and, probably, cursed the insolent doctor to his heart's content. Nevertheless, he was afraid of his life and started out, carrying his two hundred pounds' weight as well as he could. The first day's journey must have been agony, as was also the second and third days. Gradually, though, walking became easier, as the superabundance of fat melted away; and, when the patient finally reached the doctor's town and house, his sense of humor had been restored to him and he was able to realize the doctor's reason for giving the order that he had sent. The "honorarium" was worthy of the rich man and the doctor had another remarkable cure to his credit.

He had done nothing beyond making the patient walk.

THE FORMATION OF GALL-STONES

It is commonly taught that infection of the biliary tract usually plays a significant part in cholelithiasis. The *Journal A. M. A.* (March 10, p. 699) declares editorially that, while the possible importance of the bacterial factor can not be denied, there are evidences that infection is not the sole disturbance that may lead to the precipitation of bile constituents. It has been shown that a sterile thread inserted into the gall-bladder may become encrusted with the calcium salts of the bile pigments, even though the organ remains free from infection. New demonstrations have been furnished recently by Rous, McMaster and Broun of the Rockefeller Institute for Medical Research. They have observed calculus formation in the walls of tubes of rubber and glass adjusted under sterile conditions to collect bile from experimental animals. The stones were never present in the ducts themselves, and they did not occur when the collecting systems remained clear of organic débris, such as dead cells and mucus.

In those cases, The Journal continues, in which infection does play a determining part in gall-stone formation, it seems to act, according to Rous and his coworkers, by damaging the duct walls with resulting desquamation, and by lessening the ability of the bile channels to rid themselves of the cell débris. The latter induces, or furthers, the direct deposition of solids, and may catch and retain potential nuclei for stone formation, in the shape of pigment particles from higher up in the biliary system, which would under ordinary circumstances be voided with the bile. It should be recalled that the sterility of a hollow viscus or duct is maintained in large part by its free evacuation. Any stasis produces conditions favoring the growth of microorganisms that may happen to lodge behind an obstructing mass. Secondary infections, sometimes due to an escape of bacteria into the bile from the liver, may lead to new gall-stones or new layers of old ones. Indeed, it has been asserted that many of the more serious consequences of cholelithiasis are due to such infections rather than to the mechanical effects of the biliary calculi.

TREATMENT OF SOME OCULAR INFECTIONS WITH CHLORAZENE

Dr. Juan Vidal Fraxanet, of Barcelona, Spain, recently presented to the Academy and Laboratory of Medical Sciences of Catalunia, an excellent paper on the use of chlorazene in the treatment of ocular infections.

In describing the composition of chlorazene and its efficiency as a general disinfectant, he offers case reports of ocular infection, all treated by using the 1:1000 solution of chlorazene as an antiseptic. All of these patients made an excellent recovery, and Dr. Fraxanet states that these are only examples of dozens of cases of ophthalmia that he has treated successfully and without complication, by the use of chlorazene. The following are his conclusions:

"1.—Chlorazene is superior to other antiseptics that I have employed.

"2.—I have found no contraindications to its use.

"3.—Solutions of 1:1000 are always well tolerated by the patient, and they can be used in greater concentration in small quantities, a few drops in lachrymal infections.

"4.—In such cases of lachrymal infections, I have always obtained a diminution of secretion, in cases of complete obstructions, and

many cures in permeable cases. In acute contagious purulent gonorrheal ophthalmia, chlorazene is the antiseptic that has given best results of any that I have employed."

THE TREATMENT OF MIGRAINE

Migraine has always been one of the hard nuts that may be presented to the medical practitioner to crack. For years, he has attempted to pass the buck by referring his migraine patients to the ophthalmologist, the otologist, sometimes even the psychiatrist, more recently the dentist. For many years he has attempted to influence migraine favorably by insisting on promoting elimination and by removing all signs of autointoxication, whether of intestinal or bacterial origin.

We have long been convinced that migraine rests largely upon disturbances of metabolism and we are, therefore, greatly interested to find, in an editorial article in the *Journal A. M. A.* (March 10, p. 698) that Pemberton (*Arch. Neurol. & Psychiat.*, 1923, Feb., p. 208) considers headache, migraine, most cases of neuritis, many forms of neurasthenia, certain types of mental depression and melancholia to be results of interruptions in a chain of metabolic processes. Pemberton has been impressed by the similarity of the conditions mentioned to the neuropsychiatric symptoms observed in arthritic patients. Therefore, he assumes similar underlying causes; and since the treatment of many cases of arthritis from the standpoint of the existence of metabolic upsets has been favorable in his hands, Pemberton advocates an analogous procedure in the relief of the less complicated disturbances of the nervous functions.

For the conditions described, lowered sugar tolerance and changes in equilibrium of the blood gases and in the content of certain other constituents of the circulating medium have been among the features detected by laboratory examinations. These have been interpreted to be due to metabolic errors involving some phase of local or general oxidative functions. Treatment is, therefore, directed toward the relief of such conditions. As Pemberton expresses it, part of the metabolic process apparently concerned is, broadly speaking, oxidative in nature. In this is included the delivery of oxygen, the removal of the products of combustion, or both. Interruption of the normal course of events may be due to a large number of factors, among which are external physical conditions, the endocrine system, focal infection, malfunction of various viscera, and various metabolic insults. Appreciation of the general nature of this disturbance makes possible the stimulation of metabolic functions by a variety of measures on the one hand and adjustment of the metabolic load on the other. A combination of the two measures is sometimes helpful or necessary.

One of the ways of "adjusting the metabolic load" is through the path of economy in diet. The load may be lightened by a reduction in food intake, often with success, as has been reported in the treatment of arthritis. Another scheme consists in the use of hydrotherapy or external application of heat, measures often attempted without much consideration of what they may actually bring about in the organism. In a recent issue of the *Journal A. M. A.*, Pemberton and Crouter have indicated that the percentage oxygen saturation of the peripheral blood tends to rise with increased local or body temperature when this is caused by external heat. It was found that, during electric "bakes," the sweat almost invariably changes its hydrogen-ion concentration or "reaction," whatever this may have been at the start. It is generally about neutral at the outset, but becomes more alkaline or less acid as the bake progresses. This is merely a hint of deeper seated physiologic changes.

While neither dietotherapy nor hydrotherapy are new methods and while both have been employed freely for the relief of migraine, the work of Pemberton contains some suggestions upon which successful methods may be based.

NEWS

A Birth Control Bill.—According to the *Journal A. M. A.*, there is before the New York State Legislature a bill entitled "An act to amend the penal code relative to the furnishing by physicians of information and articles for the prevention of conception." The text of the bill provides that

The giving by a physician to any person, married or having a license to be married, of any information or advice in regard to the prevention of conception, on application of such a person to a physician, is not an offense, neither is it an offense to supply, on written prescription of a physician, any article, instrument, drug, receipt or medicine for the prevention of conception.

Among the Books

WILSON: "STUDY OF DISEASE"

The Clinical Method in the Study of Disease. By R. M. Wilson, M. B., Ch. B. With a Biographical Note on the Life of Dr. Horace Dobell. London: Oxford Medical Publications. 1921. Price, $1.50.

Here's a little book that helps to show that not all good things are new, as little as all new things are good. We are speaking of modern things in medicine, because we are so accustomed to smile tolerantly at the ideas of those who came before us. From time to time, we discover how greatly mistaken we are.

Doctor Wilson's book is devoted to a presentation of some of the ideas promulgated by the late Dr. Horace Dobell, who was born in 1828 and died in 1917 at the age of eighty-nine. The last thirty years of his life he spent in retirement but by no means in leisure or idleness; indeed, he retained to the end his indefatigable interest in and preoccupation with medical matters continuing to study and to write up to the time of his death.

Doctor Dobell is known to English physicians and to the students among English-speaking physicians as one of the leading practitioners of his time, especially for affections of the chest organs. His studies concerning pulmonary consumption are classic. He preceded Sir James Mackenzie in insisting that the study of disease must be undertaken by those in touch with it from its earliest hours. He investigated the origin and the nature of symptoms, endeavoring to evaluate them and to draw from his study useful information not only for the study of disease as such but also for the benefit of the patient. "The detection of any sign," he said, "is nothing unless the meaning of the sign is known."

Doctor Dobell was a clinician as much as he was a student. Wilson declares justly of him (when referring to Dobell's witnessing the triumph of bacteriology and of modern medicine): "It is greatly to be regretted that the application of the new knowledge was not more often in the hands of clinical observers of his (Dobell's) caliber. Had this been the case, we should certainly have avoided many of the false hopes which have led us so often to disappointment." Of his keenness of perception, Dobell's essay entitled "The Early Signs of Consumption" bears witness. It is only quite recently that tuberculosis students have been telling us that percussion and auscultation are not the most important means for diagnosis; that clinical observation is far more useful. Dobell noticed three early signs of consumption, namely: Loss of fat, exhaustion and nervous excitability. He adds: "Percussion and the stethoscope tell us nothing of its existence and are only of use so far as they can inform us whether or not the true first stage has passed and tuberculization taken place." "This," remarks Wilson, "is the whole doctrine of the study of early disease in a sentence. It sums up to the whole weakness of laboratory medicine and the medicine of apparatus and machine. That is good so far as it goes; but, because it helps only after disease has become established, it is too late."

There are many gems scattered through the text of this little volume which we recommend to the study of physicians. It is encouraging, it is stimulating, it is helpful. Dobell reminds one of men like Burggraeve, like Sydenham, Benjamin Rush, Austin Flint, Abraham Jacobi, and many others who have graced the ranks of medical practitioners.

POULTON: "TAYLOR'S PRACTICE OF MEDICINE"

Taylor's Practice of Medicine. Twelfth Edition. By E. P. Poulton, M. A., M. D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1922. Price, $7.50.

While this is an old book, it is old only in the number of editions through which it has passed. This latest (twelfth) revision of the text is made complete so as to bring the material into conformity with present-day knowledge and views.

The author's general discussions regarding disease (organic and functional) regarding symptoms and signs, and so forth, are highly instructive. We are interested in finding that, among the infectious diseases, he discusses glandular fever, encephalitis lethargica, gas gangrene, sporotrichosis and various other "infections" which have been studied to advantage only recently. Instead of "typhoid fever" or "enteric fever," he refers to "the enteric

fevers" and includes, under this heading, typhoid fever, paratyphoid fever A, and paratyphoid fever B.

The chapter headed "Diseases of Metabolism Including Diseases of the Endocrine Organs" is introduced by a discussion of the basal metabolism. Epilepsy is still viewed as a disease of the nervous system. We believe that very soon it will be arranged, at least in part, among the affections due to or associated with glandular insufficiency. We regret to find that the author still recommends the bromides as the most useful remedial agent in epilepsy.

Altogether, the paragraphs devoted to treatment are rather brief, as a rule. That is not necessarily a fault, because a careful study of the general remarks, also of the paragraphs on etiology, symptomatology, pathology, diagnosis and prognosis should make it possible for the physician to determine the best treatment for himself. To depend on definite drugs, mentioned by the author, would be a mistake in many cases. It usually is better to take stock of what effect is desired and then to select that particular drug from that class of drugs that will be most likely to give the results looked for.

REPORTS OF THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH

Reports of the St. Andrews Institute for Clinical Research. St. Andrews, Fife. Vol. 1. London: Oxford Medical Publication.

This book should prove attractive to the general practitioner for the reason that St. Andrews Institute for Clinical Research is conducted under the honorary directorate of Sir James Mackenzie who, at the present time, is the greatest champion of the medical man who bears the brunt of the work in medicine, from whose ranks the family physician is recruited, who sees diseases as their very beginnings and, therefore, has the best opportunity to study them.

Doctor Mackenzie has clearly outlined and indicated the great advantages for study and progress that are open to the general practitioner; he also has indicated definitely how greatly progress in medicine depends upon the work of this same general practitioner.

The contents of this first volume of reports are quite in line with Doctor Mackenzie's teachings. General practitioners, as well as medical men in general, should make it a point to acquire and to study everything emanating from St. Andrews.

CUMMER: "CLINICAL LABORATORY METHODS"

A Manual of Clinical Laboratory Methods. By Clyde Lottridge Cummer, Ph. B., M. D. Illustrated. Philadelphia: Lea & Febiger. 1922. Price, $5.50.

Here is a new laboratory guide which will be useful for reference whether for general information or for actual laboratory work. The author appears to attribute the greatest importance to examination of the blood, the related chapter containing 215 pages, more than one-fifth of the entire text, while the chapters on the examination of the urine of gastric and duodenal contents, of feces, of sputum, body fluids, exudates, etc., are shorter but none the less complete. The chapter on bacteriological methods gives instruction for the preparation of important culture media and contains much other information that is essential. We have no doubt that this latest laboratory book will be found useful.

FELTER: "ECLECTIC PHARMACOLOGY"

The Eclectic Materia Medica, Pharmacology and Therapeutics. By Harvey Wickes Felter, M. D. Illustrated. Cincinnati: John K. Scudder. 1922. Price, $8.00.

To the physician who is familiar with alkaloids and other positive remedies, a textbook of the Eclectic materia medica, pharmacology and therapeutics will be welcome. Eclectic medicines have been studied very carefully. The fact that the related investigations have been mostly clinical and only incidentally in laboratory animals does not lessen their value. There is a tremendous amount of interesting information and of useful suggestions contained in this splendid volume which we are mighty glad to have in our library and which we have consulted repeatedly to advantage.

DUNLAP: "SCIENTIFIC PSYCHOLOGY"

The Elements of Scientific Psychology. By Knight Dunlap. Illustrated. St. Louis: C. V. Mosby Co. 1922. Price, $3.50.

"The psychology of today is a science of the conscious responses of the organism, and, as such, is called upon to furnish material applicable to the problems of physical science, education, industry and the arts; and to social problems." We take it that this does not by any means exhaust the applicability of psychologic investigation, in view of the fact that the physician is constantly called upon to em-

ploy psychology in connection with his patients. To the man who has an inclination that way, this guide for the study of the "new" psychology will be very useful.

CLOUGH: "BACKBONE"

Backbone. Hints for the Prevention of Jelly-Spine Curvature and Mental Squint. A Straight-Up Antidote for the Blues and a Straight-Ahead Sure Cure for Grouch. Collected from Various Sources, Arranged and Published by S. DeWitt Clough. Sixth Edition. Chicago, 442 N. Paulina St. 1923. Price, $1.00 in art binding.

"Backbone" will be welcomed back by its many old friends and will be quite sure to gain numerous new ones. It is one of those cheery, optimistic, encouraging treasure-chests of bright sayings, of boosting paragraphs, of helpful stimulation that will tide us over many hard places, that will help us to guard ourselves from yielding to discouragement and that will impress us with the worth-whileness of things. No matter how many unkind things we may say about life, after all, to live is our most important occupation. The next important thing is to make living—the act of living—as efficient, as useful, as productive of good, in short, as worth while as possible. It's a great thing to have plenty of backbone; "Backbone" will help us to get it, if we do not have it; to keep it, if we possess it.

COUE

Is Coué a Foe to Christianity? By Another Gentleman with a Duster. New York. Frederick Moore, 730 Fifth Ave. 1923.

Here is a curious little book that, to be sure, causes one to think a good deal about (not necessarily *of*) Coué, but that occupies one's thoughts even more with the attempt to discover who is behind this slightly-intriguing designation of "another gentleman with a duster." The author deplores the numerous defalcations from the ranks of Jewry to Christianity, more especially to Christian Science. He suggests that Coué's teachings, like Christian Science, may satisfy a certain desire harbored by many Jews which their orthodox religion does not seem to satisfy.

Then, the author examines Couéism from the viewpoint of Catholicism and finds that the two are diametrically opposed, even though the Catholic church has no need to fear Coué, as she considers him quite incapable of doing harm to the church.

The question: "Who is behind Coué?" is an insistent one. It goes without saying that the little Nancy pharmacist could not have financed his American tour; it is doubtful whether he even would have thought of it. The far-spread and remarkably energetic press-agenting that was manifested during Coué's tour makes it clear that some powerful (in so far as money means power) influences were behind him.

Needless to say, the gentleman with a duster does not inform us concerning Coué's sponsor; in fact, he leaves us delightfully in the dark about the whole business.

We have enjoyed reading the little book which can be gone through in an evening's session. Personally, we have rather a sneaking fondness for our genial French visitor of a few weeks ago; we believe that he has done more good than harm. Harm there undoubtedly was. Some people expected miracles, confidently demanded the impossible and, inevitably, were cruelly disappointed. Still, in so far as The People, the man in the street and his wife and his children, are concerned, Couéism possesses many lessons that are good and few that are bad. It is only to the one who searches for motives and who enters into the philosophy of things that the potentialities for evil become manifest. To him, Coué appears in a sinister light. We prefer to retain our first impression of him and really can not see much cause for apprehension.

"GRAPE JUICE"

The Welch Grape Juice Company, Westfield, New York, issues an interesting little book about its product in which it is shown that grape juice possesses real nutriment, that has tissue building or tissue repairing properties. It deals with the advantages of grape juice as a beverage in health, during fevers, in convalescence, and so forth; as an adjuvant in the treatment of constipation and other troubles; as a tonic and appetizer, and to meet various other indications. A series of recipes is presented. We believe that this useful little volume can be had on request from the Welch Grape Juice Company, Westfield, New York.

FISCHER'S MAGAZINE

The latest issue of *Fischer's Magazine* contains several abstracts of articles on diathermy, on the use of quartz light in dermatology, on heliotherapy and other good things.

H. G. Fischer & Co., Inc., 2333-43 Wabansia Ave., Chicago, will be glad to mail copies of this interesting magazine on request.